Smoke Signals

Newsletter of Fullerton Radio Club

January 2022

President's Column - January 2022

Happy New Year! I hope you enjoyed the holidays and have been able to find the time for some fun and interesting radio (or other) activities.

Since writing the December President's Column, I have continued to study more about HF propagation, specifically Near Vertical Incidence Skywave, or NVIS for short. Recently, several of us in the club have been experimenting on the 40 meter band, testing propagation in the 40 to 250 mile range. This turns out to be tricky, because this distance is too great for reliable ground wave propagation, especially if there are intervening obstacles like mountains, but these distances are also too short for traditional "skip". NVIS is a technique for filling the "skip zone" by directing signals almost vertically, so they intercept the ionosphere at close to perpendicular and are refracted almost directly back downward.

A few weeks ago, John Mock K6AHY, Dick Palmer WB6JDH, and I did a mid-day sked on 7208 kHz. I operating portable from at Furnace Creek in Death Valley, Dick was at home in Whittier and John was at home in Fullerton.

More recently, Joe Moell K0OV joined the three of us as we did a few more experiments, again on 40 meters. This time, John was about 40 miles away, behind the Santa Ana Mountains, at Perris Valley Airport using a low random-length horizontal antenna, while Joe, Dick, and I were at our homes in Fullerton, Whittier, and Fullerton respectively. Joe was using a Buddipole in a low coil-loaded horizontal dipole configuration, John used a random length horizontal wire with a tuner near the feed point and changed antenna configurations a couple of times. I set up three different antennas in my backyard. I used a full-size dipole in an inverted-vee configuration, a Buddipole set up as a coil-loaded horizontal dipole, and a Chameleon MPAS2 vertical whip with a single counterpoise. We compared signal strengths and noise levels for several combinations of antennas.

Our propagation "experiments" have turned out to be a fun combination of quasi-scientific and social activity. I think our next experiment will be to try to do NVIS on the 60 meter band. If you would like to participate in our "experiments," let one of us know and we will let you know the next time we are going to gather on the air.

Best Regards,

Bob - AD6QF

January FRC Meeting

The January FRC meeting will again be held by Zoom due to the continuing and increasing cases of COVID-19. Although there is no planned specific topic for presentation and/or discussion, we'll be open to your participation and bringing up a topic that will be of interest to Club membership. Remember, we always invite something to "show-and-tell". Bring something of interest to the meeting to show and share your story. Something old, new, or just of interest to hams.

The meeting will be held on <u>Wednesday, January 19, at 8:00 PM</u>. If you don't have the Zoom connection and password contact one of the Board members and we'll provide it.

February 2022 FRC BOARD MEETING

The next Club Board meeting will be on <u>February 2, 2022</u>

Due to the increasing number of COVID-19 cases we will hold the meeting by Zoom at the usual Zoom ID and passcode.

Meeting time: 5:30 PM

All Members are welcome

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January 2022 Board Meeting Minutes

The January 2022 FRC Board Meeting was called to order by President Bob Houghton, remotely by Zoom, on Wednesday, January 5, at 5:31 PM. Those in attendance were President Bob Houghton AD6QF, Vice President Robert Gimbel KG6WTQ, Secretary Paul Broden K6MHD, Treasurer Gene Thorpe KB6CMO, Member at Large Walter Clark.

Minutes from the December 2021 were read, with discovery of two errors. The treasurer's report included the correct numbers, however, the $2,608.86 value was not identified as the savings account value. Additionally, the report had a typographic error indicating the treasurer's report was up to date as of 11/3021 instead of 11/30/21.

Treasurer's Report:
Checking account; $4394.72: Savings account; $2608.88 as of 1/5/22. There was a new deposit into Checking account of $145, plus an additional $80 from membership dues collection for the next deposit. Bob was reimbursed $96 for payment of the website annual fee, and Gene was reimbursed $118 for the PO Box. A fee of $51 was automatically deducted from the checking account for the safe deposit box.

Membership Report:
Membership renewals have been received from: Robert Doidge KI6KYW, Shelly Doidge KI6WUJ, Linda Endsley KJ6IHB, Bob Houghton AD6QF, Brooks Kachner W6BJK, Carole Lawver WD6DCA, Donald Lawver WB6OZZ, Gordon Levine WB6JVP, Denise Longrie KI6EPW, Chris Meyer W3KYL, Thomas Risher KD6HWD. Vicky Risher KD6MCM, Tom Smith KB6A, Gene Thorpe KB6CMO, Cheryl Thorpe KE6TZU, Bill Webb AB6OR, Paul Broden K6MHD, Larry McDavid W6FUB, Walter Clark (no call), Bart Pulverman WB6WUW. There were no new members recorded. Records show 22 paid members plus 2 life members as of 1/5/22.

Activities: There are no scheduled meeting programs or special events identified.

Old Business: None

New Business:
• 2021 IRS Form 990N E-Postcard is due before 4/15/2022
• 2021 FTB 199N must be filed before 4/15/2022
• CA SOI Form SI-100 (due every 2-years) must be filed with payment fee before 10/31/2022
President Bob Houghton will take care of the above noted required forms.
• ARRL Liability Insurance payment will be due before 3/19/22. Fee is uncertain, but last year was $200.
• President Bob Houghton. Needs to borrow BofA Bank Statements from 2021 as soon as the December statement arrives. Treasurer Gene Thorpe will provide.
• It was noted as FYI that PO Box fees have escalated unreasonably in the past few years. Fees have increased from $56 in 2014 to $118 in 2021. A discussion of alternate options ensued with no decisions.

Additional Business:
Robert Gimbel KG6WTQ noted that as the Vice President's office was not filled during recent club elections, that he would volunteer to fill the office. Club By-Laws, Article VII Elections, Section 5 indicates: "Should a vacancy occur in any office, the Board of Directors may appoint a member of the Club to fill the unexpended term". A unanimous vote by the Board appointed Robert to fill the Vice President position vacancy.

The meeting adjourned at 5:54 PB

Submitted by Secretary Paul Broden K6MHD

Monthly Show –and–Tell
Bring something of interest to the meeting to show and share your story.
Something old, new, or just of interest to hams.

Web site: www.FullertonRadioClub.org

Warehouse of the Future?

A 1950's episode of the TV show, "Science Fiction Theater" featured a "Warehouse of the Future" from which the scientists could order any seemingly-impossible, high-tech thing their work needed. That was a favorite TV show I watched on our first family TV and some of the episodes stick in my mind even today.

I was reminded of this show and episode as I unwrapped a Christmas gift from my son! I looked at the box markings and was so surprised I thought it must come from that Warehouse of the Future. I did not expect to find a USB, 12 volt, 1750 Ampere booster battery that weighs four pounds and I could easily hold in one hand! Really? See the picture.

Well, turns out this came from Amazon, which is a Warehouse of the Present, but sometimes offers unexpected things. This NOCO BOOST X GBX55 actually is a Li-ion battery pack charged by USB and providing 12 volt output at 1750 Amp peak current; it is used to start a car that has a dead battery. That's a lot of energy and power!

The NOCO GBX55 is a mid-range such booster battery pack and is rated to start car engines with up to 7.5 liter displacement at least three times; smaller and larger capacity units are also available. The unit has USB Type A and Type C connectors. It can also recharge a cell phone or tablet battery and includes a LED flashlight that can also send SOS in Morse code!

An appropriate and generous gift, occasioned because I recently found my own car battery dead after a late-night dinner. I had to call AAA for service; I now realize the AAA truck driver brought over a compact jump start battery that must have been something like the NOCO unit, if a bit larger.

The GBX55 includes several safety features, including limiting the number of restart attempts, reverse-polarity protection and spark-proof connection. It has heavy-duty battery spring clips with large gage wire and convenient storage for those clips. The flashlight could be helpful also. It is just something new to my experience and I was reminded of that Warehouse of the Future!

Larry McDavid W6FUB

Funeral Mass for Louie de Arman K6SM (SK)

Louie de Arman was a long-time member of Fullerton Radio Club and also was active in the Hospital Group. Louie died December 24, 2021 in peace with family present.

There will be a funeral mass service for Louie this next Wednesday, January 19th at 10:30 am at:

St. Joseph Catholic Church
717 Bradford Avenue (might be North Bradford Ave.)
Placentia, California

The mass will be live-streamed for those not comfortable attending in person. Access is:

stjosephplacentia.org and choose livestream.

Louie is a historic member of FRC and worked at Autonetics in 1961, later at Northrup and finally at Hughes, where he did field radar installations. Louie had memorable stories of some of those remote field installations! Louie was an active member of April Moell's Hospital Group. Louie joined the FRC bus tour of the Goldstone Deep Space Communications Complex some years ago and was active in the CSUF Arboretum, where he promoted the annual tomato plant sale. Louie had been an amateur radio operator since 1954.

Many of us knew Louie and he will surely be missed.

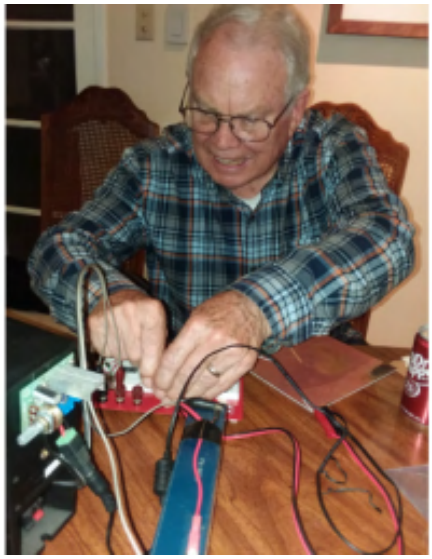
TAG Activity Report for January 2022

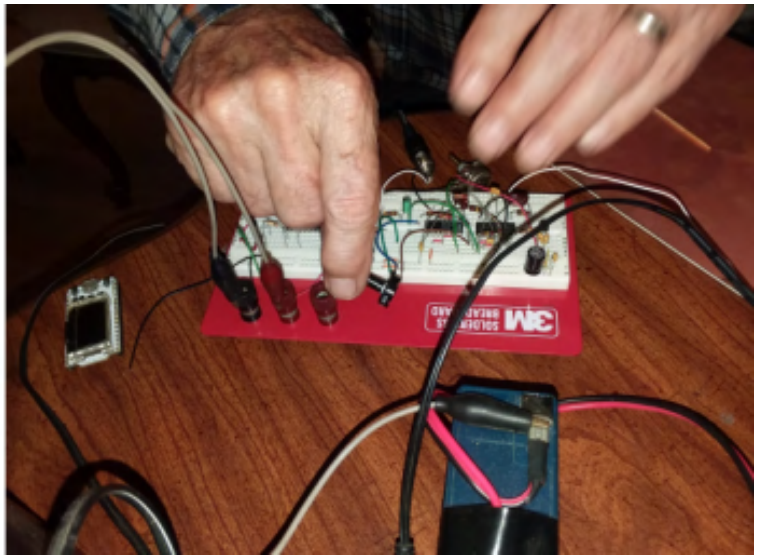
The theme for this TAG meeting was old radios. The host, Walter Clark put together a nice display of healthy snacks but as usual the most popular was the cookies Larry McDavid brings.

Last month, Walter complained that the affordable spectrum analyzers stopped just before his favorite band, 2.4 GHz. That's the frequency of WiFi, microwave ovens and model plane R/C. So Dick Palmer this month, brought a frequency meter which covered just that band. Walter bought it from Dick that very night. Dick's ham friend and neighbor passed away with a great deal of equipment to be sold at give-away prices. The spectrum analyzer was part of that. Also part of that legacy was a 12 tube receiver he made many years go. That Dick brought also. What impressed Dick was the workmanship and documentation.

Dick also brought a Therimin he's working on. It lacks the rods that you wave your hands over and only the frequency changing circuit was working well. Of course he was teased for it actually being a QRP of his own design and the circuit wasn't working according to plan.

The 12 tube receiver inspired Walter to bring down out of the mezanine in the garage a tube transmitter he built out of a 1962 ARRL handbook. Anybody remember the 6DQ7?





On the right is Walter's demonstration equipment for a presentation he gave on measuring the internal resistance of a battery. The meter has two wires for each probe. That allows the meter to use different currents to come out of the battery without worrying about the voltage drop in the leads. The use of the calculator and a battery capacity meter is the alternate way to determine internal resistance. That method is described in some detail below.

Bill Webb gave us each his latest 3D printed part; the James Webb telescope. That led to a discussion on the James Webb and its orbit and how it got there. One interesting discussion point is why they didn't do deployment in low earth orbit so they can fix it before sending it off to L-2. The answer is, with the Shuttle out of commission we have no way to fix anything even in LEO. The only extra vehicular is when connected to the ISS.

Larry McDavid gave us a further update on the James Webb telescope deployment and a very interesting discussion on his involvement with the Viking lander to Mars. He was the lead on the testing of the Beckman chemical analyzer at the NASA high vacuum facility. A problem involving cadmium out gassing and ruining the most expensive instrument was a personal experience for him. But even more interesting was his telling us of how the instrument worked and how sure they were that there was no organic material there or likely anywhere else on mars. What made the results dramatic was another instrument that was biology based found definite signs of life. Later analysis revealed that the TRW instrument was fooled by unforeseen soil reaction to intense UV.

Here he's holding Bearcat scanner which he gave to Dick Palmer is going to take it to the ham swaps.

There was an interesting discussion on how incredible the innovations that are being invented in the form of aps for your cellphone. Larry brought out a small button to remotely control the cellphone camera and then Dick pointed out that his wife downloaded an ap where you just say “shoot”. It’s not clear whether Larry chucked the fob in the trash or not.

Walter’s Presentation on How to Measure Internal Resistance

What made my presentation funny is that by a coincidence just a few hours before a $50 commercial meter arrived, it dawned on me that my amp-hour meter provides all the measurements needed and didn't really need the meter.

The way my amp-hour meter works is to first display the unloaded voltage of the battery. It always reads the same for a fully charged battery; 4.2 volts per cell. I write that number down, like 12.6 volts for a three-cell battery. I then click on the start button, and it displays the loaded voltage across the battery and the current. The current is around two amps but drops a bit as the battery drains. To calculate the internal resistance after any number of minutes I note the loaded voltage on the display and subtract that from the initial voltage (the unloaded voltage). That difference is the internal voltage drop and so I divide that by the current (I = E / R turned around is R = E / I) to get the internal resistance. Since I've never done that before and it’s not a number normally described of a battery, I had no idea what is a good number for a particular battery. I let the battery drain down for about 5 minutes and did that calculation and got .67 ohms. Compare that to the value for the first few seconds… .22 ohms; much lower internal resistance then. I let the amp-hour meter go to the limit (3.3 volts per cell) and did the calculation again. It was 2.7 ohms.

I unboxed the meter and put the probes on the battery and got the same number. Wow. I mean Darn. I could have saved $50.

Membership

A new year is here, and Club memberships are due for renewal. If you haven’t renewed your membership now is the time to do so. A membership/renewal application is attached below.

MEMBERSHIP RENEWAL / APPLICATION

Fullerton Radio Club
PO Box 545, Fullerton, CA 92836

(Please Print)

Name #1 _____ Call: _____ Class: _____

Name #2 _____ Call: _____ Class: _____

Address: _____ City: _____ State/Zip: _____

Phone #1: _____ Email #1: _____

ARRL Member ☐ Yes ☐ No

Dues are $20 per member, or $25 per family. Students (full time) $10

Bring your application and dues payment to the next meeting or mail to the above address.