



Smoke Signals

Newsletter of Fullerton Radio Club

December 2024

President's Column

The year in retrospect

For my last column of the year, it seems appropriate to take a look back at the Club's activities over the past twelve months.

2024 saw the development of some new activities as well as the continuation of some long-held traditions.

Our membership has continued its gradual growth over the past few years, reaching 36 members this year. Perhaps more importantly, the number of members who actively participated in one or more club events has also increased.

In March, several of us carpooled to the Claremont Swap Meet and then rendezvoused for breakfast at the Farmer Boys restaurant in Brea.

March also saw the return of the FRC Wednesday night net, this time with a new twist. Each Wednesday, we start with a traditional repeater check-in, and then we QSY to a different band and/or mode to do a second check-in. Each week we change it up, giving participants the opportunity to exercise their radio skills on a variety of bands and modes.

In May, we held our annual Antennas in the Park event at Hillcrest Park. It was well-attended, with about 35 participants. Joe Moell, K0OV and Marvin Johnston, KE6HTS organized the traditional on-foot transmitter hunt. Albert Solomon, AF6OF generously brought his grill and cooked burgers for the crowd.

June saw a small but enthusiastic group of club members participate in the ARRL Field Day event.

We also started a monthly "2nd Saturday in the Park" activity which has been well attended. On the second Saturday of each month, we have been getting on the air or testing gear at Hillcrest Park from 8 until 11 and then heading to a local restaurant for lunch.

Hunting QRM in Nebraska's Capital City

by Joe Moell K0OV

The Terminal Building is a downtown landmark in Lincoln, Nebraska. It was built in 1916 for offices of the Lincoln Traction Company, which operated the city's largest streetcar system. When buses replaced the last of the streetcars in 1943, the building continued to thrive as the home of businesses, law firms and the popular Terminal Drug soda fountain.



Terminal Building. Lincoln, Nebraska

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Board of Directors

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FRC December Board Meeting Minutes

The monthly FRC Board Meeting was called to order by President Bob Houghton AD6QF at 5:34 PM on Wednesday, December 4, 2024. Board members present included Robert Gimbel KG6WTQ, Gene Thorpe KB6CMO, Walter Clark, Bart Pulverman WB6WUW, and Larry McDavid W6FUB. Also in attendance was Secretary-elect Ray Rounds K6RAX.

Board members absent: None

The November Board Meeting minutes were reviewed and approved without amendment.

Treasurer's Report

- Bank balance: \$6046.55 as of November 30 bank statement
- New deposits: \$.02 interest
- New expenditures: \$211.00 reimbursement check
- New members: None

Bob's records show 35 memberships paid for 2024 and 1 life member as of 12/4/24.

Old Business

Holiday Dinner is Wednesday 12/18 at Sizzler Fullerton

New Business

Saturday 12/14 - ARRL 10 meter contest - Hillcrest Park

LoRa Meshtastic experimentation

JS8Call Experimentation

Suggestions for 2025?

Meeting was adjourned at 5:59 PM

Submitted by President Bob Houghton

In 1967, I was the engineer of a struggling 1000-watt FM radio station on the top floor of the Terminal Building. Every hour, we followed the station ID with a proclamation that our studios and offices were in "Lincoln's Prestige Office Building," which got us a discount on the rent. With visions of increasing our coverage to include Omaha and all the little towns in between, I prepared an FCC application to QSY the station to a newly-available Class C frequency and raise our effective radiated power to 134 kilowatts.

Achieving this ERP would require a 16-element antenna array. For the center of radiation to be 62 feet above the elevator penthouse, the array would have to go on a tower more than twice that height. Structural experts assured me that it was practical and safe to install a 125-foot guyed tower holding 1400 pounds of antenna and coax on the 80x140-

foot roof of a 125-foot high brick building. I filed the application and crossed my fingers.

FCC eventually granted a construction permit, but by then I had left Lincoln to seek my fortune in California. Amazingly, the high-power transmission facility was built and went on the air with only a few changes. According to Roger Agnew, K1KQ, son of the station's owner, "The entire tower was assembled and the big ERI antenna was mounted onto it on the ground along 'O' Street early one Sunday morning. Then the whole assembly was lifted up to its base on the roof by a big helicopter. The helo hovered while everything was bolted and guyed in place."

That radio station has been absent from the Terminal Building for 40 years, but the tower

remains as an important communications hub for the entire city. One of its tenants is Shaffer Communications, owned by Paul Babl KB0VUH. His commercial two-way UHF repeaters serve customers in health care, agribusiness and government.



Paul Babl KB0VUH with his radio systems

Paul says, "Besides the Terminal Building, we have a site in Beatrice and another near the Missouri River, all linked together so we have coverage from south part of Council Bluffs to the state line south of Wymore. In the last 2-1/2 years, we've undergone the busiest time since I have been the radio industry because all of our systems had to be narrowbanded to meet new FCC regulations."

In early May, Paul's customers began complaining of poor radio system performance. Locations that formerly were solid were now noisy. Communications "holes" popped up all over the city. Paul's service monitor showed that the noise floor in all of his Terminal Building receivers had increased by 30 dB, enough to drastically reduce

his system's range.

What had changed? Ancient DC motors for the Terminal Building elevators had just been replaced. Cellular systems on the roof had just been upgraded. Both were carefully checked and cleared as possible causes. Cables in Shaffer's antenna systems on the big tower were not damaged or degraded.

KB0VUH had chased interference problems before, but never a broadband source like this. So he sought assistance from NCEE Labs, a top-notch environmental and electromagnetic compatibility testing facility in the Highlands area of Lincoln. Working together, they determined that the noise source was not atop the Terminal Building, but was coming from the southeast.

NCEE techs filled a van with equipment and headed east, hoping to pick up a signal that they could triangulate against the southeast bearing to pinpoint the noise source. "It was a Friday," Paul told me. "We couldn't find any place to the east where we heard the noise. It got to be 6 PM, so I let them go home. I carried on from there on Saturday and Sunday, looking all over town with no luck. Then returning from the south side, I started to detect the noise on my service monitor. I realized later that I was pretty lucky coming through town at just the right place."

Paul guessed that it was coming from a cellular system, or perhaps cable TV lines. But as he got closer and the signal got stronger, he realized that it was probably coming from a point source. He kept at it and eventually narrowed it down to a couple of houses. "Next time, one of my friends who's a ham in the two-way radio business came with me. He had heard that you can put a paper clip into the antenna connector of a radio and use it to 'sniff' up close for signals and he wanted to try it. We got right down in between the apartment buildings. Then, suddenly, it was gone."

The noise was back next morning, so Paul printed up some notices to put on every door in the neighborhood. "The notice was very non-accusatory," he says. "It stated that there is a transmitter in this neighborhood that is affecting important communications in downtown Lincoln. The fines for interfering with a legal transmitter are very large. If you know anything about this, call me at this number or see that it is shut down."

After the notice failed to produce results, KB0VUH enlisted help from the apartment buildings' landlord.

With his technicians standing by in his truck and atop the Terminal Building, they removed fuses serving the units, one by one. "It was so amazing when the landowner removed the fifth fuse," Paul exclaims. "I heard a bunch of yelling from my back seat and also from the guy downtown. It was like 6-year old kids at Christmas.

"On the next business day, I called the FCC office in Kansas City. Two of their agents were on the way back from western Nebraska and would be taking the interstate through Lincoln. They visited the apartment and found two foreign-made broadband jamming devices, one for GPS frequencies and the other for UHF, covering 450 to 485 MHz. The agents did not seize the devices, but told their owner in no uncertain terms that they were illegal and he would have to make sure that they were never plugged in."

According to an article in the Lincoln Journal-Star newspaper, the jammers were in the possession of a 39-year-old man with a history of depression and paranoia. Two years earlier, the man had filed suit against two hospitals, alleging that doctors there had implanted a GPS tracking device in his armpit during tonsil and sinus surgery. After the suit was dismissed as frivolous, he bought the jammers to keep anyone from tracking him.

Paul relates the end of the story: "About three or four days later, it was back on again, so I stopped in at the Lincoln Police Department. One officer was very understanding. He told me, 'It's like that guy has his hand around the throat of your business and your livelihood.' That officer talked to the guy and told him that if the jammer was heard again, he would be arrested. As far as I know, it has not been on since."

President's Column from page 1

This month, the club celebrated with a meal together at the annual Holiday Dinner. We met at the Sizzler in Fullerton and had a turnout of 25 members and guests. We had a great time, with the conversation lasting long after all the food had been consumed.

Perhaps lastly, since you are reading this, it would appear that we managed to keep the production of *Smoke Signals* going for another year.

73,

Bob AD6QF

Repeater Ramblings

by Bob Houghton AD6QF

If you are a regular user of the K6QEH "Raytheon" repeater, you have no doubt noticed that it is currently off the air. It went silent over the Thanksgiving holiday, when the Raytheon facility was closed. Since Raytheon sometimes uses these holiday breaks to do facility maintenance, Joe figured that the facility power was off and the backup battery had discharged. When the repeater didn't come back on the air when Raytheon went back to work, it was obvious that there was a more serious problem.

Joe arranged to visit the facility to find the cause of the problem. He discovered a bad power supply and carried it home for repairs. Meanwhile I donated a "nearly new" 120 Ah deep-cycle flooded lead-acid battery to the cause, since the existing battery was likely damaged after sitting at zero charge for a couple of weeks.

Since it was possible that Raytheon would turn off the power again over the holidays, Joe decided to hold off until after the New Year before attempting to reinstall the power supply and battery.

Meanwhile, WARA's N6ME repeater on 145.400 PL 103.5 is quiet, friendly, and has great coverage of the local area. That's where I have been hanging out.



Antlers and Antennas

TAG Activity Report for December 2024

The Theme was “your PC”: interesting software, hardware, not necessarily ham related.

Bart Pulverman talked about achievement awards sponsored by QRZ.



Award Certificate - World Radio Friendship



Award Certificate - World Continents



Award Certificate - Grid Squared



Award Certificate - Master of Radio Communications Europe



Award Certificate - DX100



Award Certificate - United States Award



Award Certificate - United States Counties



Award Certificate - 30 Years of QRZ

<https://shop.qrz.com/collections/awards> Bart is primarily active on FT-8.

Larry McDavid has a new and very fast desktop computer and this evening talked about some of the utilities that he installs on every new PC. He also discussed changes to the Yahoo Home Page that make it no longer useful to him (no more RSS feeds for example). Larry gave us a kind of pep talk about the importance of paying the shareware developers fee after evaluating their free version.

Walter Clark (the host) asked **Bill Webb** to show how the hobby of micro-controllers (Arduino and ESP-32) connects to the PC... the PC being the theme for the evening. He's holding an FTDI or USB-to-Serial Converter. While the micro-controllers have evolved to 5 be smaller and have more functions, the FTDI has been the same all these years. It's



comforting, you might say, to have these laying around like a screwdriver. The USB part is of course what connects to the PC but usually the FTDI is only for programming the microcontroller. It's a tool. When in use microcontrollers communicate to servos on a robot. They connect to any number of sensors but if they need to send data to a PC it is by way of the onboard Bluetooth or WiFi.

Bill brought yet another “objet d'art” made by his 3D printer. The connection to the theme of the evening is the software [on a website] he used to convert a picture of himself and Denise, his wife, into 3D objects.

The input picture is only 2D face-on of course. The software adds assumed detail of the sides and back.



Ray Rounds gave the main presentation of the evening on his ham radio Mint Linux installation on a repurposed laptop computer. He will tell us about this in a separate article in the January Smoke Signals.

