Smoke Signals

Newsletter of Fullerton Radio Club

July 2019

JULY CLUB MEETING

WARA/ FRC Field Day!

On June 22- 23,FRC had a joint ARRL Field Day with the Western Amateur Radio Association. We operated a 2A station, with Get on the Air, Solar, and Satellite setups.

Over 30 guests and members visited us at the Isaak Walton Cabin, and amid operating we enjoyed pizza, burgers, and hot dogs.

We worked 34 of 50 States worked plus 4 Canadian Provinces, with 56 of 83 ARRL Sections worked, yet in a usual Field Day twist, we didn't end up working San Diego.

There were 105 CW, 69 Phone, 4 Digital, 54 GOTA, and 30 Satellite Contacts.

Ken, W6KOS, will be submitting our score to the ARRL in the coming days. Scores for all participants will appear in November or December QST.

Please come to the July FRC Meeting on **Wednesday July 17;** Tom Gaccione will talk about our Field Day weekend and big plans for next year!

Fullerton Radio Club
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Board of Directors

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Show –and–Tell: Every Meeting
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

July Board Meeting Minutes

The July 2019 FRC Board Meeting was called to order at 7:30 pm by Larry McDavid W6FUB. Others present: Treasurer Gene Thorpe KB6CMO; Secretary Linda Endsley KJ6IHB. Directors: Walter Clark;. Member: Cheryl Thorpe KE6TZU.

June Minutes were approved.

Treasurer's report: Checking $3,883.46 savings $2,608.02

Old Business:
Bylaws were approved at the May general meeting. Paul to post in Smoke Signals. Bob to post Bylaws on the web site.

New Business:
Field Day was good. Just enough food was purchased. There were 34 people who signed the register; 12 FRC; 8 WARA; 1 LNACS; 13 not stated.

The June general meeting topic will be Field Day.

Several members haven't renewed their membership for this year.

Next board meeting: 7 AUG 2019

Adjourned at 7:55 pm

by Linda Endsley KJ6IHB

Revised Club By-Laws

Your Board of Directors has been working on an update to the Corporate By-Laws for the past several months. A draft version of the final version has been provided by email to all members for review and comment at least two weeks prior to presentation to the Club, as required, before an acceptance vote. The final revision was then presented at the May regular Club meeting for the acceptance vote. A quorum of paid members was present at the meeting, and accepted the revised by-laws by unanimous aye vote. The revised by-laws have been posted on the Club website. If you would like a personal copy a PDF version will be sent to you by email upon request.

SMOKE TEST

This discovery might be more profound than the recent work on 'dark suckers', light bulbs.

As I was working on a solid state device the other day,

the realization of a basic truth came over me.

It was simple ! So obvious !

Why didn't I see it before?

I discovered how ICs work, because every time I let the smoke out on an IC, it stops working.

Of course, smoke makes all things electrical work.

Remember the last time smoke was released from your voltage regulator, didn't it quit working? I sat and smiled as I realized this truth.

It's the wiring harness that carries the smoke from one device to another.

As it springs a leak it lets the smoke out of everything at once.

The starter motor needs large quantities of smoke thus the large diameter of the wire to it. Also the compressor in the refrigerator

and the power cable to my power supply.

If improvements in wiring are to be achieved, we need to have a way to keep smoke from leaking from wires.

Everyone should be working on this problem.

Another example would be the air in tires or the lack thereof.

A useful tool they give to you at fast food stores is a 'long, circular, hollow, tubular 'liquid extraction unit' for your soda.

Tom KD6HWD, and Vicky KD6MCM, Risher

Water Quality

Way down in this report is the Total Dissolved Solids or TDS of Anaheim water. Typically, I measure the TDS in my own Anaheim city tap water slightly higher than is reported by the city. The Report has vastly greater detail on specific minerals but most folks accept TDS as a general indicator of the concentration of minerals in tap water.

TDS is an interesting measurement. The most widely used standard for calibrating instruments that report TDS in parts-per-million concentration was developed by the Myron L Company 40 years ago. Myron L sells quality instruments to measure TDS and water conductivity still today. I happen to own one of their analog meter (rather than digital display) Myron L TDS meters and I have three Myron L calibrating solutions to check its accuracy (see picture of my Myron L meter). But, it is not quite so easy to use as is the cheap digital stick TDS meter we typically use ($8 on Amazon, see picture). Here is what Myron L says about the "442" standard for calibrating TDS meters worldwide:

"442 Natural Water™ Standard Solution is used in calibrating many Myron L® Instruments. It is the best choice when measuring boiler and cooling water samples, city water supply, lakes, wells, etc. "442" refers to the combination of salts mixed with deionized water to comprise this standard: 40% sodium sulfate, 40% sodium bicarbonate, 20% sodium chloride. A combination of standard salts is necessary since natural water salt type and concentration can vary greatly by location. After much research, the 442 Standard was developed by the Myron L® Company more than 40 years ago. It remains the world's most accepted standard."

Here is a link to the Myron L Company website:

http://www.myronl.com/

I drain my RO system overnight once a month. The next morning I measure the TDS of the dripping RO water and my tap water. The tap water typically measures 700+ ppm and the dripping RO water about 15-20 ppm. Flushing the RO system like this promotes maintenance and longevity of the RO membrane. My RO membrane is now nearly 10 years old and still working well. I record the measured values so I can track trends but, really, over many years, the results don't vary much.

My RO system has a dispense faucet at my kitchen sink but is also connected to my refrigerator for cold water and ice. I drink and cook with RO water and, especially, use it for making tea and coffee. Hot tea made with my tap water is always black in color because tannin in tea is

an indicator for minerals; tea made with RO water is an amber color typically. My refrigerator ice is clear because tap water minerals don't condense when the water is chilled; the white curds in the bottom of melted ice are the precipitated minerals.

I also use the RO water for some shop uses, especially for metal finishing chemistries and for patina-making chemistries. If I have a leaky alkaline cell (battery), I clean the equipment with RO water. You can always flush electronics with RO or distilled water without damaging the electronics. Spill coffee on your computer keyboard? Flush it with RO or distilled water!

You do need some minerals for good health. But, believe me, you get plenty of minerals in other food and drink items. I'm not saying my city tap water is unhealthy, just that its minerals affect my tea, coffee and some of the things I do around the house. RO water systems are available at Costco and Amazon and fit under your kitchen sink. A simple digital TDS meter is low-cost and good to have even if you don't have a RO water system.

Larry McDavid W6FUB

FRC Mobile T-hunting News

If you like mysteries, you'll like hidden transmitter hunting. Where is the transmitter this time? How to get there with minimum mileage? That's what you will be thinking on the Fullerton Radio Club's mobile T-hunt, which takes place on the third Saturday evening of each month. The hunt on April 20 was put on by Ron Allerdice WA6CYY. He parked on the east side of Bristol Street, at Red Hill Avenue, just west of John Wayne Airport in Costa Mesa. Here are the start-to-finish mileages (lowest mileage wins):

Team Calls	Odo Miles
WA6PYE/N6AIN	19.5
KA6UDZ	33.6

Steve Wallis WA6PYE and Deryl Crawford N6AIN, having won the April hunt, were hiders on May 18. They parked in the Starbucks just south of Cantu-Galleano Ranch Road, near the intersection of the 60 and 15 freeways in Eastvale. This was about eight miles outside the FRC boundaries. They advised the hunters of this in advance and nobody dropped out. Mileages were much higher than usual on this hunt:

Team Calls	Odo Miles
WA6CYY	38.7
KA6UDZ	40.3
N6ZHZ/KN6AXD	46.9

So the June hunt was hidden again by Ron Allerdice WA6CYY. He chose a spot next to the Newport Aquatic Center at the end of Whitecliffs Drive in Newport Beach.

Team Calls	Odo Miles
KA6UDZ	39.7
N6AIN/WA6PYE	49.6

So Scot Barth KA6UDZ is scheduled to hide the transmitter on July 20. His continuous signal on 146.565 MHz goes on the air at 8 PM. Hunt usually ends before 11 PM. Start at the top of Acacia Drive in Fullerton.

73,
Joe Moell K0OV

Ham Radio for Sale

Family of an old friend (SK) is offering this transceiver for sale. All in good working condition.

- Yaesu FT-757GX; with matching Yaesu FC-700 Antenna Tuner and Diawa linear power supply. It's a complete HF station. I can even get you an HF antenna to go with the radio. $450 OBO

Contact me by email or phone (See Newsletter Editor on page 2 for numbers)

Paul K6MHD

Technical Auxiliary Group of the Fullerton Radio Club (for July 2019)

Once again we met at Walter Clark's house, second Wednesday. Here's **Larry McDavid** holding one of several psychrometers he brought to the meeting. Larry's hobby (one of many) is collecting antique scientific instruments. A psychrometer is device for measuring the humidity. It has a dry and a wet thermometer and when a bit of breeze goes by the wet bulb its lower temperature is an indication of the humidity or lack of it.

The one he's holding is a "sling" psychrometer. The handle in his left hand allows the bulb end of the two thermometers to whirl around in the air. He had one other sling psychrometer and two of the type which use a wind up spring powered fan to draw air past the thermometers.

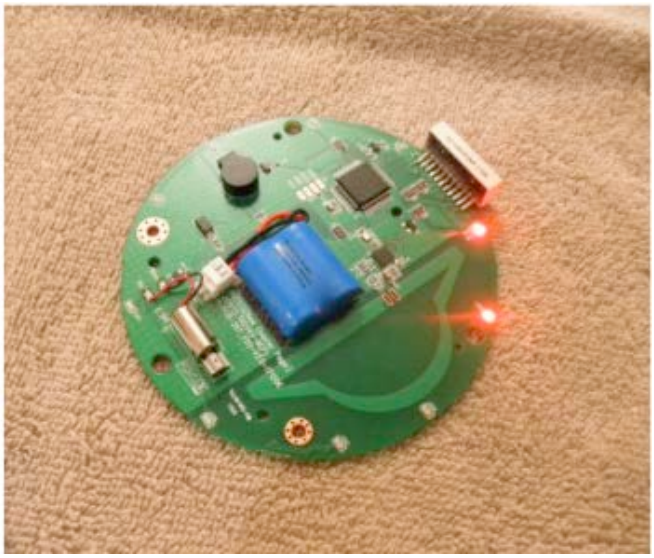
Dick Palmer related his experience at Zuni Loop on Field Day. This year's score was only 2,270 where in previous years they were more than 10,000. The reason is the loss of a key player on the team, Cameron Hartford N6GA who was something of an organizer for the group. The main effort isn't operating Saturday

afternoon and Sunday morning but setting up all the antennas; shooting the lines over the trees, pulling antennas through and then tuning. The team members are all in their 80s.

The location (just east of Wrightwood) was ideal in that there were no hills between them and the horizon. The only trees were the ones used to hold the antennas. Dick has a microwave rig but didn't bring it nor his 2 meter or 6 meter rigs. He was an operator on phone (SSB) on 40, 20 and 15 MHz. Four others on the team were doing CW on those frequencies. Their mode was 3A.

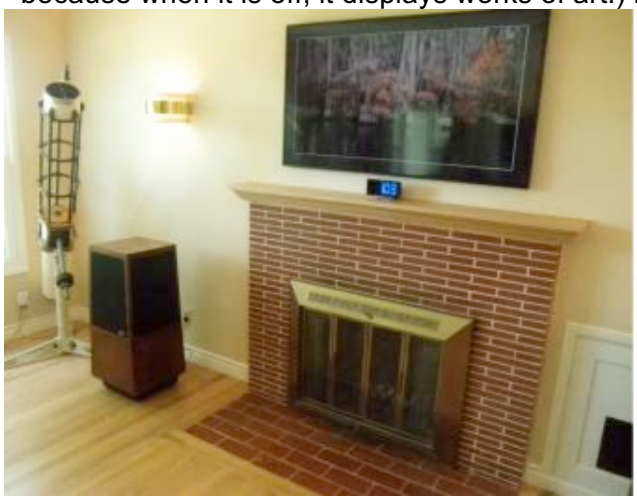
Dick said he is presently burdened by the radio gear of two silent keys which led to a discussion on what we knew of Dennis Kidder and the earth quake.

Dick Bremer brought something familiar to people who frequent restaurants that serve hundreds at a time. It's that thing that buzzes on your table when your food is ready. He assured us he didn't steal it, but not sure about the guy at the swap meet who sold it do him. That led to a discussion about how they worked, what frequency and so on. He also brought one of his rubium frequency references and talked about how stable it is. Larry McDavid is our expert on time and frequency standards and has many types of highly accurate frequency and time standards. For Larry it is mostly a theoretical study. For Dick it is used for his microwave rigs. Bill Webb pointed out that when you use a 10 MHz reference and multiply it up to the GHz band, you have to have to have one part in a billion stability to be stable to one cycle per second. Dick doesn't need it quite that good, but if you want to find someone in the microwave band it has to be much better than a crystal. Back when rubidium standards were new they were called atomic clocks.



Speaking of atomic clocks, **Walter** shared his purchase of a La Crosse so called Atomic Clock. It's called that because it uses the National Bureau of Standards (Boulder Colorado) time reference broadcast on WWVB. What Walter wanted is an LED clock that he could put under his "The Frame" TV. (It's called The Frame

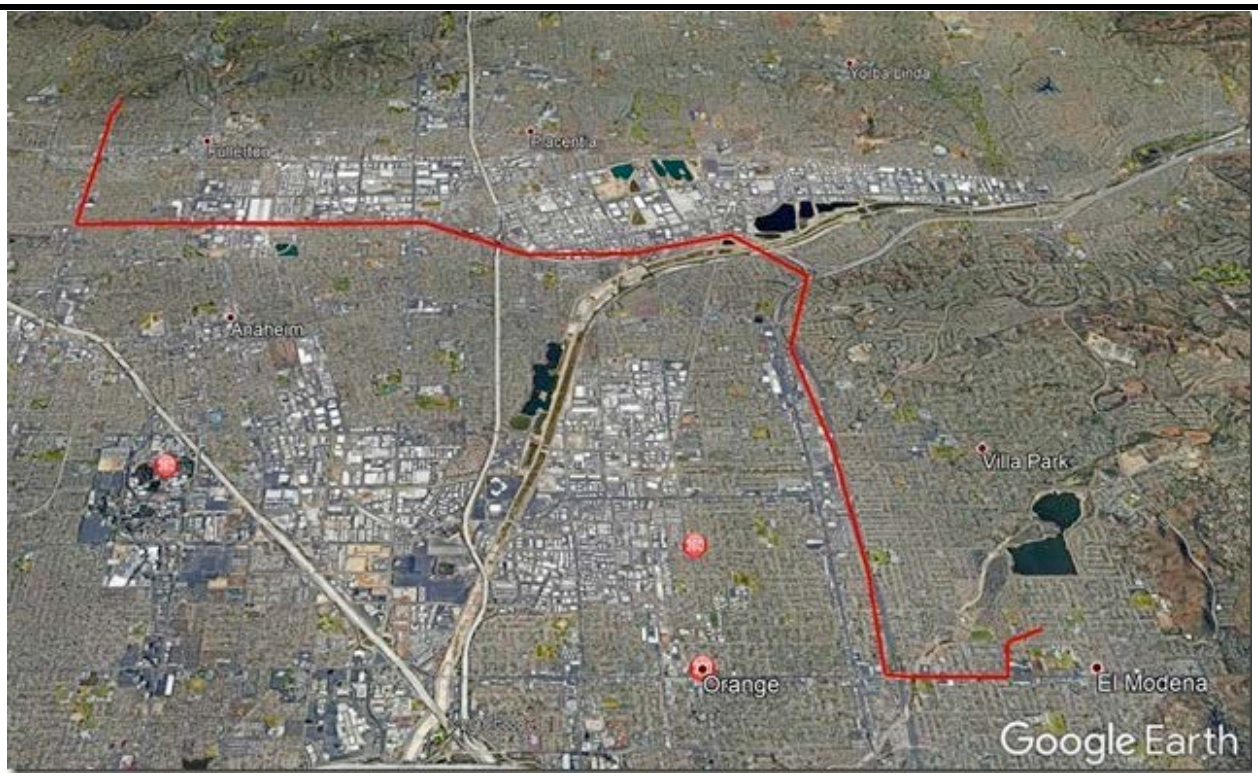
because when it is off, it displays works of art.) Notice in the picture there's no cable because



he arranged for it to be battery powered. The story that makes this an engineering discussion is that he used a store-bought cellphone battery back up. The first one he bought turned itself off after about a minute. The reason it did was because there was a circuit that sensed a load and if there wasn't one, it turned itself off along with a voltage booster and regulator for charging. The LED "Atomic Clock" only uses 7 mA which isn't enough for the circuit in the battery to think it is being used. So he bought one with a switch thinking it was an older model that needed to be turned on. Nope. That was a switch to turn it off; not hold it on. So he modified the circuit so that the battery was directly connected to the USB output port. It was pretty simple fix but he had to distroy the attractive case it was in.

Bill Webb's latest project is a GPS path recorder using an ESP8266. (That is his favorite Arduino replacement.) Using his 3D printer he made the nice box on the left in the picture below. The display shows the present lat/long and a press of the red button logs the present location. Otherwise it records a path data point once every minute or whatever interval he programs into it. (Not shown is the USB for changing that and getting the data for display on a desktop computer. See below.)

The three GPS receivers he brought, represents several years in the evolution of the circuitry. The first one was $70 and not as accurate or useful as the one on the right that is only $12. Bill thinks it's the huge market for rather sophisticated drones that brought the price down.



July 2019 FRC MEETING

Wednesday, July 17, 2019

Chapman Activity Center
2515 San Carlos Drive, Fullerton
(Second street east of State College Boulevard off Commonwealth)

Meeting time – 7:00 PM

Visitors are always welcome
Dinner before the Meeting:
Black Bear Diner
5:00 PM

August Board Meeting

Open to all Club members

Marie Callender's Restaurant
126 Yorba Linda Blvd., Placentia
First Wednesday of each month.

Next Board Meeting

Wednesday, August 7, 2019

QSO and dinner; 6:30 PM
Meeting: 7:30 PM

Remembrances

It's hard to believe that it's nearly six years since we lost club founding member Bill Kohlenberger W6ZJE [Zebras, Jackasses & Elephants as he liked to identify his call]. Here's photo of Bill and wife Barbara that Larry McDavid discovered from a 2009 Kohlenberger family Christmas letter. Miss you, Bill.