



# Smoke Signals

## Newsletter of Fullerton Radio Club

### March 2017

#### President's column

As my soggy backyard begins to dry out and as I prepare to set the clocks forward tomorrow evening, I am reminded that spring will soon be here. This month might be the time for you to get around to that antenna project that you have been putting off. The rain is (likely) over and it isn't too hot (yet).

The approach of spring means it's time to mark your calendars as we look forward to some outdoor ham radio activities. The Donate Life Run/Walk at Cal State Fullerton will be coming up on Saturday, April 29. Gene Thorpe, KB6CBO, will be asking for your help in providing communications support for this worthy annual event.

Plans for this year's Antennas in the Park are firming up. The date this year is Saturday, May 13. Just like last year, we will be at Hillcrest Park. Great news - Gene was able to secure the Izaak Walton League cabin for us, so we will have shade, tables, and perhaps most importantly for some, we will have

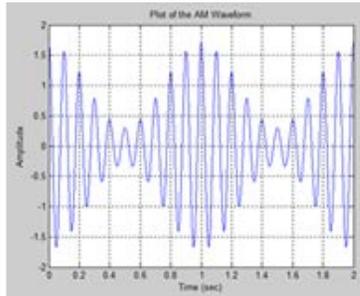
access to restroom facilities without first completing a vigorous cardio-vascular workout. Albert Solomon has volunteered to return as head chef, Larry McDavid has volunteered to do a Costco run, and Joe Moell promises an interesting ARDF course for us to navigate. It is rumored that Joe will not allow Tom Gaccione or myself to eat lunch until we complete the ARDF course. We will have to see about that.

We are hoping to organize a field trip out to the Goldstone Deep Space Communications Complex, probably in May. Tours have been on hiatus, but are scheduled to start up again in mid-April. Stay tuned for more information.

I hope to see you Wednesday at the FRC meeting.

73, Bob - AD6QF

#### March Meeting Speaker Subject.



### RF Over Fiber

Rich Belansky, KG6UDD, will present a basic introduction to optical fiber with an application topic called "RF Over Fiber" and demonstrate a simple RF fiber optic link. He describes himself as a "physicist at heart" who works at Raytheon (old Hughes Aircraft Company) as an engineer who struggles with having too many interests, including the topic of time and never having enough time.

**Wednesday,  
March 15, 2017**

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**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](http://www.FullertonRadioClub.org)**

**March 2017 Board Meeting Minutes**

The March 2017 FRC Board meeting was called to order by Bob Houghton AD6QF at 7:30pm. Present: Treasurer Gene Thorpe KB6CMO and Secretary: Linda Endsley KJ6IHB. Directors: Larry McDavid W6FUB, Paul Broden K6MHD, Robert Gimbel KG6WTQ and Richard Belansky KG6UDD, Members: Cheryl Thorpe KE6TZU, Albert Solomon AG6OF, and Bill Preston KZ3G

Treasurer's report: Savings - \$2,606.90; Checking- \$3,885.01

Minutes from the February Board Meeting were read and approved.

Old Business:

Goldstone tours start in April.

The Donate Life Run will be on April 29 at Cal State Fullerton, 6:30am to about 11am

Antennas in the Park event date is May 13. Larry will purchase the food and Albert will cook.

Bob said that 16 people had joined our Meetup group. The site can be setup to accept RSVPs for our monthly general meeting.

New Business:

Three renewal memberships were received during the month

Walter Clark met with Brody and he will cover the Meetup charges – we can choose between two selections; up to 50 members or unlimited members. Larry suggested that we try Meetup for a few months.

The Fullerton Radio Club web site needs to be updated. There are pictures from years ago. Bob said that he would be willing to update the web site. Walter will get hold of David (David has been adding newsletters to our web site.)

The March general meeting speaker will be Richard Belansky KG6UDD. The topic will be RF over fiber.

Next board meeting: 5 APR 2017

Adjourned at 8:00 pm

Submitted by Linda Endsley KJ6IHB

## Transmitter Hunting Update

There has been so much rain this winter that many of the sites we use for on-foot transmitter hunting are unavailable. But spring will soon be here and the hunts will resume. Mark May 13 on your calendar for the annual Antennas In The Park at Hillcrest Park, where you will have a chance to look for transmitters on two meters and 80 meters. It's not a big park, so it's ideal for beginners. This time we will gather at the Izaak Walton cabin and there will be a barbecue lunch. Watch for more details as the date approaches.

Meanwhile, the FRC mobile transmitter hunts continue on the third Saturday of every month. On February 18, 2017, the hiders were Steve Wallis WA6PYE and Deryl Crawford N6AIN. Their transmitter was in East Bluff Park, southeast of the Upper Newport Bay in Newport Beach. The bay is always a tricky area for transmitter hunting because hunters have to determine which side of the bay to choose and then get there with minimum odometer mileage to win. Winner this time was Ron Allerdice WA6CYY with 22.3 elapsed miles. Next was the team of Robert McCubbin N6EET and Glenn Tobey AB6PA with 30.0 miles. So Ron will be hider for the March 18 hunt, which will start from the top of Acacia Avenue in Fullerton at 8 PM. The signal will be continuous on 146.565 MHz.

73, Joe Moell K0OV

## COMMUNITY SERVICE

Amateur Radio Operators are needed: To Help with the Donate Life Run/Walk Family Festival on Saturday April 29, 2017 from 0700 - 1100 hrs. or so. **Put it on your calendar.** This will be our 15<sup>th</sup> year of participation! **YOU ARE NEEDED.**

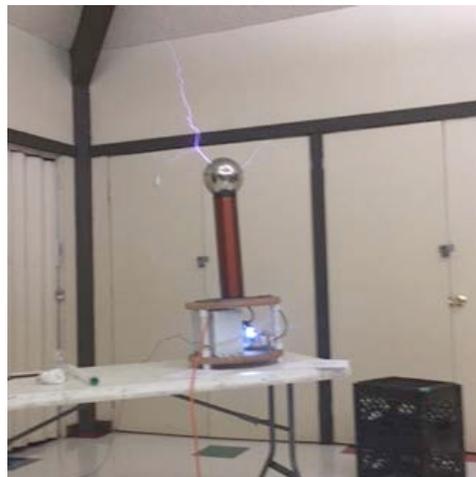
ARO volunteers should sign-up using this specialized URL below?

[http://olf.convio.net/site/Calendar?id=100143&view=Detail&s\\_promoCode=2017ARO](http://olf.convio.net/site/Calendar?id=100143&view=Detail&s_promoCode=2017ARO)



## February's Meeting

If you weren't at the February FRC meeting you missed Erik When's great demonstration of a Tesla Coil. Sparks all over the place, noise, noise, noise, and smell of ozone. Here's a few pictures from the demo.



And a "Singing Tesla Coil from Larry McDavid

## Report on the Activities of the March TAG Meeting

On the left is Jason Choi K3CJY, our newest TAG member. He lives near Bob Houghton just north of Sunny Hills High School. He is new to ham radio and was introduced to TAG by our past president Albert Solomon. He is a pastry chef who owns a bakery. For some reason that started a rather long discussion about working at Disneyland. Bill Preston (far right) worked there for many years in the sixties and had the most to say, not much of it complementary of Disney. Tom Gaccione WB2LRH (middle below) is teaching (along with Bob Houghton) 7 people new to radio. These are people who may potentially have an interest in being part of the HDSCS. It's every Saturday at the Ambulance Company conference room. Tom and Bob went into some detail on the method of teaching. Tom, (again with Bob) helped a neighbor of Tom Fiske's with an Antenna.

On the right in the photo is Bill Preston, whom we haven't seen in a long time. He's been away at sea and now in the process of moving to Texas to be nearer his two boys who are going to Texas A & M. Because it's been a long time, we encouraged him to talk at great length about his experiences going around the world aboard an automobile transport ship. He's had enough of that adventure and his new job seems to involve our newsletter editor Paul Broden. It has to do with ISO 9001 and fuel filters for large marine diesel engines.



Here's Tom Fiske looking not too happy about a "Rig-Blaster". It's a D to A converter that provides a capability that turns out is already in the Icom 7600 that he recently purchased. He's getting more interested in DX. Turns out most of us in Fullerton have a direct shot to the Pacific Ocean, without any landmass until Japan and Russia. He'd been doing

that on 20 meters with only 20 watts using PSK-31 and JT-65. That allows him to read on the screen about the characteristics of the "other guy's" radio. It was Tom's neighbor who he, the other Tom and Bob, helped with an antenna mounting. Tom talked about what an interesting guy that neighbor is; 98 years old... personal friend of Arnold Beckman.



Dick Bremer inherited an Eaton Noise Figure Meter at an SBMS meeting last week. It needed a noise generator and that led into an interesting discussion on noise sources that the entire group seemed to be interested in. He's holding a diode which when forward biased with (large value series resistor) makes an excellent white noise source from DC to high MHz.



Walter Clark, the TAG host was next. He and Dick are active in SBMS San Bernardino Microwave

Society. Walter inherited at the same meeting something called an orthomode transducer feed horn. He showed it and described what it does. He also gave a short review of the Sci Fi movie Passengers.

Tom Curlee on the left, hasn't been doing much hamming because of work, but what he does at work is about what he would be doing as a hobby anyway. His present project is Vibration Fixtures. His father gave him a Hermes Pantograph Engraver that he's thinking about restoring. He's also challenging himself to receive a weak signal all the way from France, their equivalent of WWV.

Rich Belansky is still quite busy at Raytheon but is doing homework for his talk at the FRC meeting next Wednesday. It is on using laser light and fiber optics to carry an RF signal.



Bob Krohn came late. He's a long-term friend of Bob Houghton. By profession he's a surveyor and so is quite familiar with navigation using sextants and precise timepieces. He's enjoying house sitting (and taking care of a dog) of his cousins in Verdugo Hills. He told us about his encounter with wild animals there at the foothills. He told a fascinating story about referencing the Angels' "big A" landmark many miles away. Either their equipment was broken, or he suddenly became totally incompetent. Turns out that day, that very minute, workers in Anaheim were moving that sign some 600 feet. Well told story we all enjoyed.

Bob Houghton is one of the teachers of the new Hospital Group members (with Tom Gaccione). He described a problem he was having with his trailer hitch and his plans for a rather long (12 week) camping trip across Canada with his wife and her sisters from China. Bob is trying to get involved with

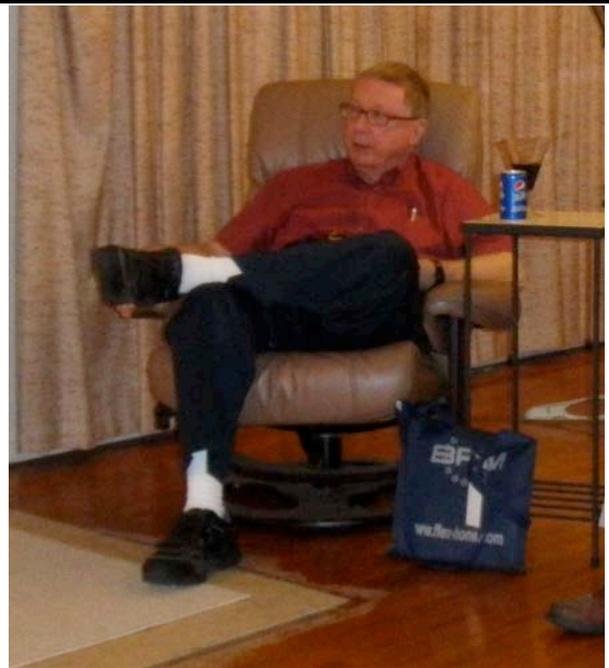
JT65 and was successful in helping Tom G. get the St. Jude repeater more secure.



Brooks Kachner on the left, is planning on working on his QRP and WSPR radios someday and led a discussion on some new low frequency bands that the FCC is opening up. Brooks is a collector of military guns and is in a club where the guys get together and shoot them. He told us about his experience with a 90-year-old gun and 75-year-old ammunition.

Bill Webb of Orange on the right above, passed around the latest Pi Zero computer. The new one is Pi Zero-W for wireless. It's twice the money (\$10 instead of \$5) of the old Pi Zero, but this one has built in WiFi and Bluetooth. He said it is about the same as the old 486 PC in horsepower. The Pi series of computers differ from microcontrollers such as the Arduino in that it has an operating system that can address a keyboard and mouse through USBs and in the case of the new Pi Zero-W, wirelessly. He's also getting very involved with the Internet of Things and feels that it might be best left to early adopters sine the reliability is low and the documentation is bad.

He brought along an example in the form of Amazon Echo-Dot. He taught us how to command it starting with the word "Alexa". He demonstrated many of Alexa's "skills" as they are called. When talking about her he used "Ms A" instead of Alexa so as not to trigger her. It is interesting is that most of the code he had to write for his own skills handle wrong interpretations.



Dick Palmer to the left of Joe Moell is our expert on QRP radios. Dick along with fellow TAG member Bill Phinizy K6WHP (not shown) went to Ham Con in Arizona and picked up a Spectrum Analyzer kit for free. He has a much more powerful one in his shack already, but this one was tiny and designed around a very powerful Analog Devices chip. He was just plain intrigued with it. It goes from 50 KHz to 60 MHz. It was a gift to him but there was a stipulation that he keep the fellow who gave it to him posted on his progress in getting it to work. To do that he had to join 40 meter net, which is enjoying very much.

Larry McDavid was quite concerned with the most recent QST cover. He and other members listed many things wrong. He recognized that it was staged but still it didn't represent what was even talked about within the pages of that issue. He went to his fourth lecture on LIGO. He is getting to be a real expert on gravitational wave detection and we may draft him to be a speaker on that subject for an FRC meeting. He is very involved with clocks and showed a video (slow motion) of three clocks and how accurately their tenth second digits were tracking each other [See article on page 7]. Two of them are WWV based Heathkits and the other Tindie kit he built based on GPS timing signals. He also shared pictures of a new GPS antenna he mounted on his roof.



Walt

Joe Moell is becoming involved with Boy Scout Radio Merit Badge as the most recent update will include, for the first time, an optional radio direction finding activity as one of the things a Scout can do to earn the badge. He's also been playing with a new amateur satellite built by a middle-eastern college. There's also a UK amateur satellite he's been working. He suggested that in our next field day we try to work these satellites.

## Clock Mania

If I were really maniacal about clock accuracy, I would use the 1 pps output of my several GPS Disciplined Oscillators (GPSDO) to establish accurate UTC time-of-day. That would provide nanosecond accuracy. But, really, I'm just fascinated by desk clocks that can be read accurately by humans.

I have two old Heathkit "Most Accurate Clocks" that use red LED, seven-segment displays to show time down to tenths of seconds. I built the first one of these in 1987 and it has run since, giving me great pleasure! But, these Heathkit clocks rely on the time-of-day encoded on the seconds-tick tones of WWV radio station in Fort Collins, Colorado. Yes, that WWV seconds tick-tone is really two different tones and data are encoded there!

Recently, a new LED digital desk clock that uses GPS for time determination became available and I bought one on-line at Tindie.com. (\$59) It, too, shows time to tenths-of-seconds.

I wondered how closely the time from my Heathkit WWV clocks would correspond to that from my new GPS clock so I positioned them so I could read all three clocks in one glance.

Note in the picture that all three clocks show the same time down to the tenth-second digit. I've taken this picture numerous times and the tenth-second displays always show the same time. The camera shutter speed (well, it is my cell phone camera in this case) is very fast, far faster than the tenth of a second it takes for that digit to change.

But, I wondered how closely those tenth-second digits really changed together. Visually, they appear to change simultaneously. I then realized my cell phone camera can take slow-motion video! The fastest it can image is x1:8 or 8 times faster than real time.

I recorded a few seconds of this slo-mo video but the file is 11.5 MB and I don't want to attach that large a file to an email. If you want to view this mp4 video, I can provide a link to download it.

The display digits are multiplexed at different rates, the multiplexing is not synchronized among the clocks and the camera has a frame rate also, so there are some artifacts in the motion video. Apparently the Heathkit clock display multiplexing rate is close to some multiple of the camera frame rate so you see what appears to be a rolling update of those displays

left-to-right, but that is not seen visually, it is just a video artifact.

The interesting thing is that even sped up 8X the tenth-second digit appears the same and to change simultaneously on all three clocks! I think that is really neat!

That Heathkit clock cost \$259 as a kit in 1987 and they sell today on eBay for \$400-\$600. The clock design has many innovative features and was way ahead of its time. And, of course, there was no GPS then.

How can I not be impressed and fascinated by these three clocks?

Ok, ok, maybe I am a bit maniacal about clocks...



Larry McDavid W6FUB

Monthly FRC meetings are held at:

**Chapman Activity Center**

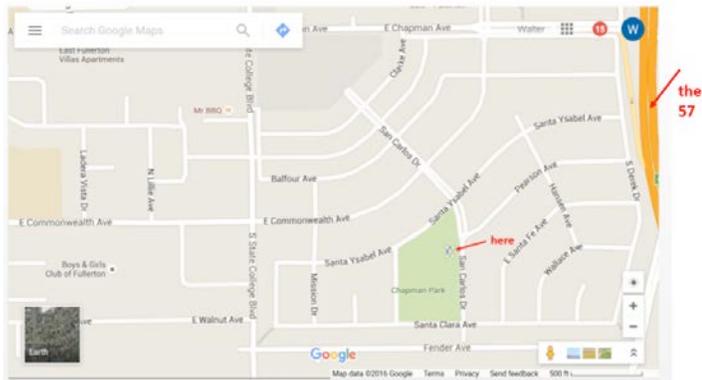
2515 San Carlos Dr.  
Fullerton, CA  
March meeting will be:  
**Wednesday,  
March 15, 2017**

Dinner before the meeting at 5:00 PM (new time)

at:  
**Sizzler**  
**1401 N. Harbor Blvd.**  
**Fullerton**  
**Meeting time: 7:00 PM**  
**Visitors are welcome**



Chapman Activity Center



**FRC Board Meeting**

**Open to all Club members**

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

**Next Board Meeting**  
**April 5, 2017**

QSO and dinner; 7:00 PM  
**Meeting: 7:30 PM**

**Antennas In The Park**

Its time for us to plan the next club outing; *Antennas In The Park*. As always, the key feature will be the popular Joe Moell K0OV on-foot T-Hunt, but let's not limit other activities! Last year we had one portable HF station, several pieces of equipment on display, and a drone demonstration. What can we/you think of for this year's event? How about additional portable HF/VHF/UHF or even microwave stations? Or perhaps a demonstration or two – or more – from the TAG group projects? What else? It's up to your imagination!

We'll have the usual BBQ – club funded, but donations accepted. And something **NEW**: the event will be at the Izaak Walton Cabin at Hillcrest Park (with restroom). Details to come, but reserve the date: **Saturday, May 13, 2017.**

**MEMBERSHIP RENEWAL / APPLICATION**

Fullerton Radio Club  
PO Box 545, Fullerton, CA 92836

(Please Print)

Name #1 \_\_\_\_\_  
Name #2 \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone #1: \_\_\_\_\_  
Phone #2: \_\_\_\_\_

Call: \_\_\_\_\_ Class: \_\_\_\_\_  
Call: \_\_\_\_\_ Class: \_\_\_\_\_  
City: \_\_\_\_\_ State/Zip: \_\_\_\_\_  
Email #1: \_\_\_\_\_  
Email #2: \_\_\_\_\_

ARRL Member  Yes  No

Special Amateur Radio Interests: \_\_\_\_\_

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.**