



# Smoke Signals

## Newsletter of Fullerton Radio Club

### June 2017

#### June Meeting Presentation

Walter Clark, your FRC Vice President, will be giving a talk on . . . Electrostatics. The talk is at a first year college physics level minus the math, but it is wrapped around the equipment he has. It would be better, of course, for the demo to be chosen in support of the physics, but this way is more fun. And quicker too, because there's only so much that can be easily demonstrated.

All physics demonstrations, not just those of static electricity, tend to be historically the oldest discoveries in physics; typically 19th Century where the equipment took on a Jules Verne quality. The reason present day demonstrations seem to be associated with

antiques is that they were discovered just by playing with them and can be made with simple materials. They did not need much of an understanding of the nature involved to be discovered. It is to be expected then, that some demonstrations are actually difficult to explain but were quite popular. Because they were shown a lot, they took on names like the "electrophorus" which will be demonstrated. The talk is the inspiration of Pat Coker N6RMJ who gave Walter the Wimshurst Machine you will see in action. To make it relevant to the ham radio audience, I will try to tie the fields associated with static electricity to the electrodynamic fields that become detached from their source and become radio waves. That part will be sketchy though.



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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)**

**June Board Meeting Minutes**

The June 2017 FRC Board meeting was called to order at 7:35pm by Vice President Walter Clark. Others present: Treasurer Gene Thorpe KB6CMO and Secretary: Linda Endsley KJ6IHB. Directors: Larry McDavid W6FUB, Paul Broden K6MHD, Richard Belansky KG6UDD, and Robert Gimbel KG6WTQ. Members: Cheryl Thorpe KE6T'ZU and Bill Preston KZ3G. Visitor: Irene Broden

Treasurer's report: Savings - \$2,607.02; Checking- \$4,093.01

Minutes from the May Board Meeting were read and approved.

Old Business:

Antennas in the Park – Thanks to Larry for purchasing the food, Albert for cooking, and Helen for helping.

New Business:

Need speakers for the general meetings.

Dues are due for those who have not paid.

General meeting speaker will be Walter Clark. The topic will be Electro Statics.

Gene will talk to Robert Doidge KI6KYW regarding Eagle Scout projects for Kohlenberger donation. Approved \$100 for approx. 10 scouts depending on how many scouts.

LA Habra Run/Walk will be July 4<sup>th</sup>. Gene needs radio operators.

Ham Jam will be on July 8<sup>th</sup> at HRO Anaheim.

Ham Con will be September 15th, 16th, and 17th.

Bill Preston has an assortment of equipment to donate.

Next board meeting: 5 JULY 2017

Adjourned at 8:30 pm

Submitted by Linda Endsley KJ6IHB

## Our 6<sup>th</sup> Annual HRO Ham Jam is coming up!

Saturday, July 8, 2017 is the date, store hours are 10AM-5:30PM, and once again we will be hosting our local clubs and communications specialists in the store parking lot for another educational and fun event.

Come see local communications vehicles, learn about Hospital Disaster Services, and see how many of the local clubs make various activities available to local hams. We look forward to hearing from any local group who would like to reserve space for this event.

The Eagle Scouts will be providing a hotdog lunch again this year, and Mr. Gordon West and many manufacturer representatives will be available for questions. Seminars will be scheduled on various subjects, including D-Star, C4FM System Fusion, and other hot topics.

License testing will also be available most of the day; if interested in testing, please call Janet at the store at 714-533-7373 with name and contact information so that we may plan for appropriate seating.

Two prize drawings will be held during the day at 12 noon and 3PM. Winners will need to be present to win goodies

from many of our suppliers who have donated some really great stuff!

Come join us for a fun-filled Saturday of ham radio; make it your goal to leave having learned at least one new thing and/or shared your own knowledge with at least one new ham.

Kind 73,

**Janet Margelli, KL7MF**

**Manager, Ham Radio Outlet**

## A New Approach to Forecasting Solar Flares?

I found this page in the Science News website:

[https://www.sciencedaily.com/releases/2017/05/170522081042.htm?utm\\_source=feedburner&utm\\_medium=email&utm\\_campaign=Feed%3A+sciencedaily%2Fspace\\_time%2Fastronomy+%28Astronomy+News+--+ScienceDaily%29](https://www.sciencedaily.com/releases/2017/05/170522081042.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily%2Fspace_time%2Fastronomy+%28Astronomy+News+--+ScienceDaily%29) This may be interesting for the folks in the club about solar flares.

Please tell everyone hi for us,  
73, Tom KD6HWD and Vicki KD6MCM Risher

## From The May FRC meeting

John Beckwith N6JCB with his Motorcycle Mobile demonstration.



## Antennas In The Park Event

"Antennas in the Park" (AITP) has become the biggest annual activity of the Fullerton Radio Club. Transmitters and receivers from the HF through microwave bands are set up, contacts are made and good food is eaten. There are also some transmitters hidden away for fans of radio direction finding to seek. I have learned that it's important to start the transmitter hunts early, before everyone chows down on the hamburgers, chicken and sausages that Albert Solomon AG6OF cooks up. Otherwise, they will be too stuffed to search. There were four practice transmitters close by on different frequencies in the two-meter band. Several novice foxhunters sought them out, including Tom Smith KB6A, Linda Endsley KJ6IHB and Mike Sussman. That was a prelude to the ARDF course, with five two-meter transmitters on the same frequency, each transmitting for sixty seconds in sequence. Each competitor is started separately, as the first transmitter comes on the air. Here are the results of that hunt:

### TWO-METER COURSE RESULTS -- 5 FOXES

<u>Name and call</u>	<u>Time</u>	<u>Foxes</u>
Bill Wright WB6CMD	0:43	5

Eduard Nasybulin	0:59	4
Bob Houghton AD6QF	1:10	4
Rick Stutsman N6IET	1:19	2

The 80-meter band is also very important in the world of ARDF, although fewer hams have equipment for tracking on that band. I had plenty of equipment to loan, so anyone could try if they wished. Here are the 80m results:

### EIGHTY-METER TRANSMITTER RESULTS

<u>Name and call</u>	<u>Time</u>
Bill Wright WB6CMD	0:10
Eduard Nasybulin	0:16
Wil Anderson AA6DD	0:48
with Robert Haggard AD6XJ	
Justin Miller KI6AFZ	DNF

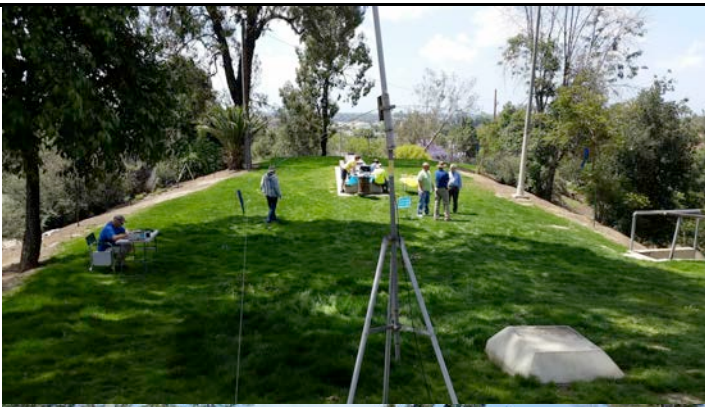
After running (or walking) up and down the hills of Hillcrest, hunters enjoyed a slice of the traditional Foxhunting Weekend cake, courtesy of April Moell WA6OPS. Thanks to everyone who helped make it a great day!

Joe Moell K0OV



Article and photos by Joe Moell K0OV

## More Photos From AITP



Photos courtesy of Larry McDavid W6FUB

Included above are three photos of the Amateur Radio Tower Trailer that was set up for demonstration at the AITP event. Shown above is the trailer with tri-band antenna being raised, the trailer with the numerous emergency radios, and their logo as shown on the tow vehicle. The Amateur Radio Tower Trailer Team is a team of Hams dedicated to support of local communities and Elemering utilizing Ham Operated Mobile Equipment Lending Emergency Support Services Supplying Ham Elmers Logistics and Training through Everyday Radio Communication. With the use of Amateur Radio Tower Trailers we are able to provide support and Elemering almost anywhere a vehicle could tow a trailer. The first of soon to be three ARTTT Trailers, sometimes referred to as the Homeless Shelter, is owned and designed by Dennis Baca KD6TUJ with the support of Conrad Lara KG6JEI and Greg Gibbs KI6RXX. In the photo of radios in the trailer the top shelf includes: APRS, 6 Meter, 2m/70cm. 1.25cm/2m, Scanner, Broadcast Receiver AM/FM, Marine, MURS, GMRS, and CB. Lower shelf includes: HF, Monitor, F.R.S., and Cellular Client Station. Their statement as to why Ham Radio works so well is: Telephones, cell phones, Internet, trunk lines, satellite phone--to get a message out, all have to go through many vulnerable choke points and need electric power. Even if the system is functioning, these systems can be overwhelmed by the number of cries for help and families seeking information. While hams MAY use the Internet or a repeater system, they do not have to do so! Hams can "go direct" and talk straight through to each other because each station is fully independent. Hams can operate just fine without other infrastructure. By selecting the right frequencies, hams can talk across town or around the world. Our thanks to the ARTTT group and information "borrowed" from their website: [www.WorkofARTTT.org](http://www.WorkofARTTT.org).

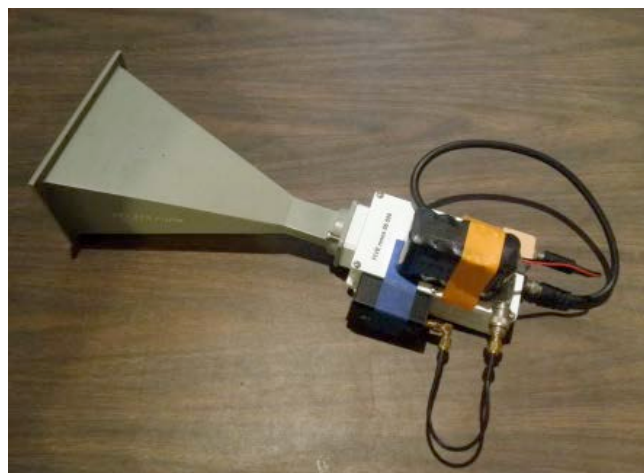
## Activity Reports of the Fullerton Radio Club TAG Group for June 2017

After the meeting **Bill Preston**, Dan Slater and Tom Gaccione (not shown) were in a very technical discussion about upgrading the Keysight (HP) Fieldfox. But in the formal going around the room Bill regaled us at length about epoxy painting a garage floor. He had one question from his son about modifying a computer power supply to provide the surge current for a valve to control an air compressor.



Dan Slater shared with us a recent purchase from eBay of a military band circular polarized high gain antenna that fits in a pouch small than a coffee can. As you can see, he really enjoys putting it together.

**Walter Clark** shared with us his progress on an X-band receiver. It use a rather high-end satellite dish LNB as a transverter and a \$170 SDR. The only circuitry here he did is a bias tee to run the LNB. Oh and he bolted a horn to a waveguide flange that doesn't quite fit. With it he has seen the two southern California 10 GHz beacons from the top of Hillcrest Park in Fullerton. Left to do is mount it on a tripod and figure out how to support the laptop needed for the SDR.

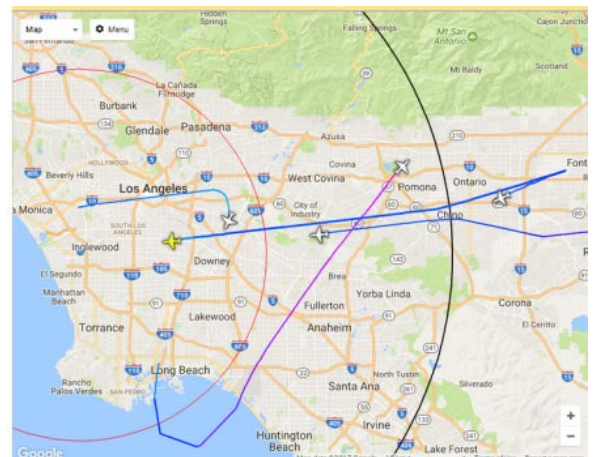




**Rich Belansky** has for the past few months been buying up and studying SDRs. One is an SDRIQ (an early SDR from RFSpace) which has a “true” receiver frontend (i.e. bandpass filtering, adjustable RF attenuator and variable gain amplifier) instead of just the digitizer (found in the many of the \$10 dongle SDR receivers). That’s for VLF and the HF bands. He has another far cheaper SDR for 30 MHz and above. All of these SDRs digitized the received signals and convert the data into I and Q data (real and imaginary components of complex-valued data) as part of the digital signal processing chain. Rich is more interested in “receiving” all types of both man-made and natural radio signals than transmitting. (This can be described as “radio science observing”.) He like a few others around the room has found lots of activity on 6 meters. At least for a while.

**Tom Gaccione** has been very busy for the past month on ham related projects.

- He showed how he uses ADS-B at work. It is the ground truth for some radar thing his group is making. He uses this very piece of hardware. Here’s a typical image its software produces. Someday we may hear a talk at FRC from him or Tom Curley on this subject. <https://www.openflightsolutions.com/flightbox/>
- Tom was assigned homework from last month. He was to find out how the various Edison generators stay in phase so they can be switched in and out. He told us that in the 1920s an inventor gave away his synchronous clocks to the various power plants to aid in their synchronizing. He told us that there are four networks that are stand alone: A north, an east a west and a Texas network. Tom thinks there’s less interest on the part of power companies in being dependent upon for accurate time keeping.
- Tom told us about some amateurs using a balloon and some sort of radio connection to the internet to track the balloon as it went across the country. It uses PSK 31 and APRS: Automatic Packet Reporting System; all very familiar to hams. (Perhaps another talk for an FRC meeting.)
- He also told us the progress on his fixing a 220 section of an ICOM 2330. This has been ongoing for a while, but he broke it during reassembly and ended up trashing the whole several hundred dollar radio.
- He showed us a new PL encoder for the hospital support group repeater. He also repaired the power amp of a 150 watt linear.
- He led a discussion on field day and talked about the mystery device Dennis Kidder presented.



- And finally he brought up an article in QST about a digital AREDN and talked about its use. This might be of increasing interest to amateurs in that it uses a mesh network at 3.4 GHz... low power and keyboard entry.



**Tom Fiske** took a trip down memory lane with his telling us about “phone patch”. Apparently at one time the only way you could couple anything to the phone lines is by acoustic coupling. Even the early computer modems used the headset on a cradle. It wasn’t the technology that forced that. It was the government protecting the telephone company’s precious wires.

Tom and other hams didn’t know there was such a law and direct coupled them with much improved quality of signal.

**Bill Webb** is getting very into the Internet of Things. He showed his latest project

a \$5 board that is essentially an Arduino with built in WiFi. What astonishes Bill is how cheap computer plus two-way data radio is getting. This latest board, which he passed around has the indistinct name of 8266. It is one of many small computers with radio he has made and is running out of projects to put them in. He has at least two weather stations and integrating all means of entertainment for his giant screen TV. He thinks this latest one will control his garage door from commands to Alexa. The only problem is timing to keep Alexa busy during the door operation sequence. It should be amusing what Bill finds for Alexa to do.



**Dick Palmer** is preparing for Field Day. Apparently the QRP types feel so special they hang out together. He expects about 7, this year. The reason they feel above the rest of you mere hams is because they get extra points for using less than 5 watts. Low power of course means they are very dependent on good antennas, miles high. They have a favorite place on Table Mountain where they can use guns to launch their long wire antennas between very tall trees. Somehow the discussion moved to Frisbee Golf. Perhaps they have to share the space with that sport. Dick also reported fantastic DX contacts he’s made on six meters. He reported on a website called DXmaps dot com which appears to be a sort of hand operated WSPR (amateur radio software). Dick found it very useful.

**Tom Curley** retired a few weeks ago. That means of course more time to work on projects including cleaning out his radio room and machine shop. He has been playing with JT65 and also reported on how good 6 meter has been for 4 days in a row. He successfully applied some radio science to a problem with a plugged up drain.





**Joe Moell** related a story of work he did on a 160 kHz flushable transmitter and matching receiver for finding underground septic tanks. He also brought a new state-of-the-art direction finding receiver for 80 meters. It was designed by a German engineer and manufactured by Rig Expert, Ltd in Ukraine, a company best known for making antenna analyzers. The set has a loop antenna, four frequency presets, a built-in timer and other features to help contestants find transmitters in the woods. He expects it to become popular at ARDF championships in the future.

**Dick Bremer** has gotten the City of Brea to OK funding a ham repeater for use by RACES. It will go in the Chino Hill area if he can find some hams there to support it. We're talking in the thousands of bucks here and it isn't quite approved yet. He suspect the reason for the sudden support of emergency oriented radio in a building shared by the water department is that it can further justify and more expensive addition of an emergency generator.

Monthly FRC meetings are held at:

**Chapman Activity Center**

2515 San Carlos Dr.  
Fullerton, CA

March meeting will be:

**Wednesday,**  
**June 21, 2017**

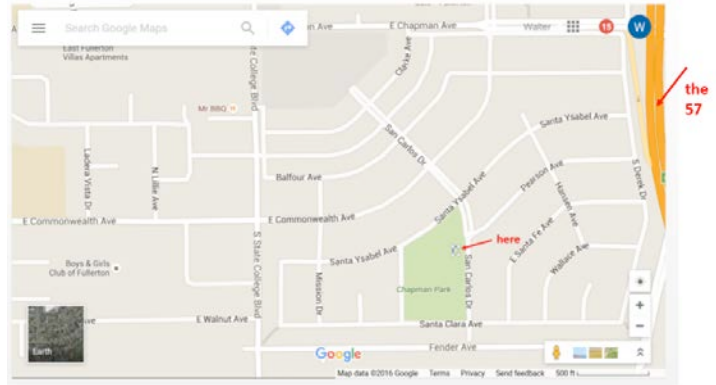
**Dinner before the meeting: 5:00 PM – at:**

**Sizzler**

**1401 N. Harbor Blvd.**  
**Fullerton**

**Meeting time: 7:00 PM**

**Visitors are welcome**



Chapman Park location

**FRC Board Meeting**

**Open to all Club members**

**Marie Callender's Restaurant**

126 Yorba Linda Blvd., Placentia

First Wednesday of each month.

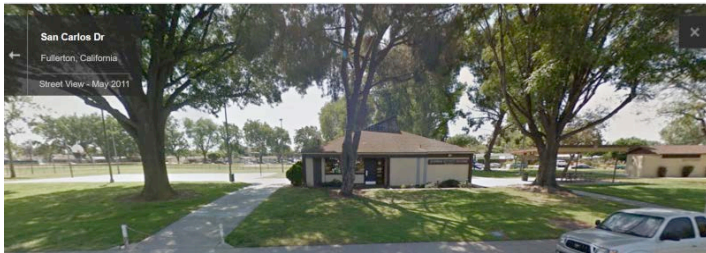
**Next Board Meeting**

**July 5, 2017**

**(Note day change to Thursday due to July 4 holiday)**

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

**Meeting: 7:30 PM**



Chapman Activity Center

**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: \_\_\_\_\_

Phone #2: \_\_\_\_\_

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.**

