Sierra Foothills Amateur Radio Club

http://www.sf-arc.org/ AUGUST 2010 PO BOX 1005. NEWCASTLE. CA

At the key of SFARC

S F A R C

OFFICERS

PRESIDENT
Al Martin, NI2U
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Frank Sharit, W6DHN
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REPORTERS
Satellites: Greg, KO6TH
History: Gary, KQ6RT
Misc Radio: Fred, K6DGW
Sunshine: Richard WA6RWS
rkuepper@ymail.com
916-482-5027

RESOURCES

REPEATERS
145.430 (-0.6 MHz/PL 162.2)
440.575 (+5.0 MHz/PL 94.8)
223.860 (-1.6 MHz/PL 100.0)
CLUB NET
Thursdays, 7:30PM, W6EK/R
145.430
CLUB MEETINGS
Second Friday of the month, 7:30PM at the Library, 350 Nevada St, Auburn CA
CLUB BREAKFAST
Last Sat of the month at Susie's Café, Cirby at Riversic Roseville – 8:00 AM
NET CONTROL OPS
Dave Jenkins, WB6RBE
Gary Cunningham, KQ6RT
Norm Medland, W6AFR
Casey McPartland, W7IB
NEWSLETTER EDITOR
Matthew Diridoni, KC6RUO
916-749-3032
matteod@comcast.net

In this issue

Calendar of Events

August 14 — **SFARC CLUB PICNIC**
Auburn Recreation Park
123 Recreation Dr.
(Off Racetrack & Auburn Folsom Rd)

September 10 — "Breath California" Bike Trek
Operators needed (See page 5)

September 11 — **Third Annual Sacramento Valley Hamfest**
Lincoln High School
790 J St., Lincoln, CA
http://svhamfest.org/

SFARC CLUB MEETING

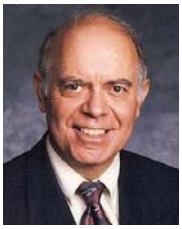
"Big Dish Moon Bounce"
Pat Barthelow

"Tech Ten" Presentation

Fox Hunting
Al Martin

Don't miss this interesting presentation!
Bring a friend See you there!

We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing



From the Presidents Shack

Al Martin, NI2U

President's Thoughts

What is Amateur Radio?

There are many aspects to Amateur Radio. There is the Camaraderie, Education and Operations.

For Camaraderie, the SFARC has Monthly Meetings, Monthly Breakfast Gatherings a Picnic and the Christmas Party.

The Education aspect of the SFARC has Programs at the meeting, TechTens again at the meeting, and as individuals, each of us can learn about Electronics, Propagation, Antennas and Computers. The Operations aspect of Amateur Radio includes Contesting, Community or Public Services and the SFARC Repeaters.

Amateur Radio has a large number of aspects that can be enjoyed.

Club Picnic

The Club Picnic is set for August 14, 2010 at Recreation Park, Picnic-Rec 2. The reservation only includes food and soda. Recreation Park is off of Auburn-Folsom Road. I took a look at the facility which I reached off of Auburn-Folsom Road with a west turn on Race Track Street. traveling a ways to Recreation Drive and a left turn. There is a lot of shade and a covered pavilion with eight tables. There is parking adjacent to the Pavilion. The Club Board is looking forward to seeing you there.

ARRL VEC
AMATEUR RADIO VOLUNTEER EXAMINER

Local ARRL Exam Sessions
Courtesy of the ARRL

SFARC TESTING

SFARC has testing sessions on the first Saturday of each month at Raley's on the corner of Auburn Folsom Road & Douglas Bl. in Granite Bay. Sessions are in the multi-purpose room in the back left hand corner of the store. The session starts at 8:00 AM

OTHER TESTING SITES

08/21/2010 | Carmichael CA 95608-6613

Sponsor: River City ARCS
Location: Carmichael Elks Lodge-Use East Entrance
Time: 7:00 AM (Walk-ins allowed)

09/18/2010 | Carmichael CA 95608-6613

Sponsor: River City ARCS
Location: Carmichael Elks Lodge-Use East Entrance
Time: 7:00 AM (Walk-ins allowed)

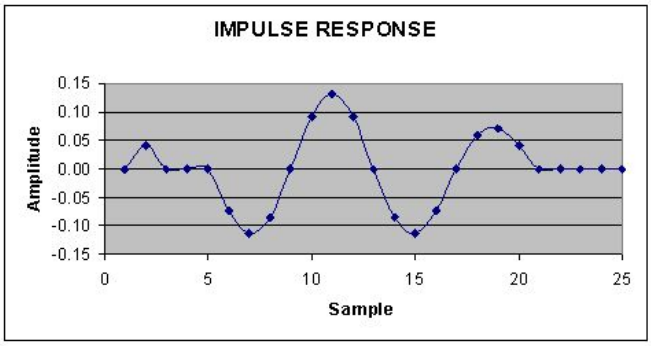
Sponsor: River City ARCS
Location: Carmichael Elks Lodge-Use East Entrance
Time: 7:00 AM (Walk-ins allowed)

MISCELLANEOUS RADIO
Impulse Response

Well Folks, continuing our journey down the DSP Rabbit Hole [with apologies to Lewis Carroll], having done the fun part and constructed a digital bandpass filter, lets come back and tie up a few loose ends, like "FIR" and "order," and a couple of others. We'll do this with a lot of analogy, and maybe a little arm waving because I've been retired for 10 years now and the "other way to do it" involves more mathematical detail than I remember, and I don't want to disturb the dust on my college textbooks to re-learn it.

"FIR" stands for Finite Impulse Response and FIR filters are theoretically impossible to build with real components, which I think is sort of cool – last month we actually built one that could have been implemented in your DSP radio. Not a lot of reason to do that, it wasn't a great CW filter, but still sort of interesting. And, note, I said theoretically.

Since the beginning of electronic filters, they have been characterized by their impulse response. You may have noticed that, as you use very narrow filters on a radio, they begin to "ring." The signal sounds like it's being sent to your headphones through a pipe, and indeed, that is exactly what happens when someone talks to you through a long pipe. The pipe acts as an audio filter, and … like all other filters … it sounds "ringey."That's what impulse response is measuring.



An impulse is a signal that starts at a positive value and immediately [and I mean like instantly], goes to zero and stays there forever. Think of banging a church bell with a hammer – one bang, then nothing. The bell rings of course, and acoustic losses slowly cause the ringing to fade. Theoretically, it never falls to zero, but in the real world, it does or at least becomes unmeasurable. In the analog world [which includes you and your hammer], you can't really hit the bell for an infinitesimal duration.. And thus, in the analog electronic world, it is hard … make that impossible … to create a true impulse signal. We can make the impulse very short but it will always have some duration. Designers resort, yet again, to mathematics to get around this problem.

Once we've gone digital, things change dramatically. The plot above is the impulse response of our 20th order filter from last month. I got it [using Excel] by feeding it an impulse and plotting what happened at the filter output after that. Remember the impulse happens at time zero, and then goes away forever. In the DSP world, that meant the the first sample of the number soup was 1.0 and thereafter, all the samples were zero. And you can see from the graph that the filter rang, until about sample 22, when all went to zero and stayed zero forever. It was, in fact, the perfect impulse signal because we're in the digital world now and one non-zero sample is an exact impulse.

The reason for this is the filter has 21 tap-coefficients, remember those – the ones you took my word for? When 22 signal samples have been pushed down into the buffet plate holder, that one impulse sample has fallen out the bottom, the push-down list is filled with zeroes, and all the multiplications and additions we do in our filter produce zero, forever. My time series graph of the impulse response doesn't tell us much, but when subjected to mathematics, it can tell us a great deal.

You may have heard the term "pole" applied to filters [usually but not necessarily crystal filters]. These refer to a mathematical transformation called the Laplace Transform ["lah plahh ss"] With this transformation applied to the filter impulse response, a great deal of information can be determined, including the passband characteristics, stability, and the like. In the Laplace space that results, it looks like a topography with nice round volcano-like

mountains rising out of it. Those are the "poles" and where they are situated gives us all we need to know about our filter. Generally speaking, the more poles, the steeper the filter skirts – and unfortunately, the more complex the whole passband.

There's another digital filter design called "IIR" for Infinite Impulse Response. Theoretically, IIR digital filters can ring forever, and while no filters built with real electronic components do that in practice, it is possible to build digital IIR filters that do. We'll try our hand at an IIR filter later on, in Excel of course, and since a filter that rings forever isn't very useful, ours won't.

I called our filter a "20th order filter." Some would call it a 21st order filter. It just depends on how you count the stages. If you had one position in the push-down list, the filter output would be each input sample multiplied by a single tap coefficient. If you call that a zero-order filter, then ours was a 21st order filter. The textbook I learned from said there were no zero-order filters, so for me, it is a 20th order filter with 21 tap-coefficients.

If building filters is one of the sexier things we can do with the number soup, the Discrete Fourier Transform [DFT] has to be the second most sexiest, and the Fast Fourier Transform [FFT] tops the list. It opens a whole new universe of things we can do with the number soup. So, next month we'll jump into some more fun stuff and explore the magic behind the "waterfall display" in your PSK31/RTTY software.

Cycle 24 does seem to be underway, just going very slowly. I suspect the HF bands will be considerably more interesting this winter however.

73,

Fred K6DGW

Fifty Years Ago at SFARC
Gary Cunningham, KQ6RT

August 10, I960

The August meeting was held on the second Wednesday of the month for the first time in accordance to the first Amendment to the Constitution passed at the July meeting. President Jim Carman called the meeting to order at 2020 in the area next to the dance floor on the fairgrounds. Nine members were present for this meeting.

The Secretary's minutes were read and approved. The treasurer reported a balance of $87.11. The question of a meeting place was not settled as we have at least one more month when we can meet outside.

There was no scheduled activity for this meeting, so much time was spent in group discussions, Pres. Carman brought up the possibility of putting up a "Ham" station during the District Fair. However no definite action was taken.

The secretary-treasurer is to continue on for the time being even though his license expires later this month.

Walt Dowdy reported that the fellow whom he was going to contact in regards to his cabin at Echo Lake had just arrived back in the U.S. As Walt is going on vacation the next two weeks, he will not be able to contact the owner until next month. So no plans were made for a Club Field Day Type meeting. More on this later.

A Code Course Class was discussed.

The meeting was adjourned at 2100 for do-nuts and more discussion groups.

Respectfully submitted,
Richard H. Lund

Radio Supply Company

11846 Atwood Road
Auburn, CA 95603
(right next door to Midas)
530.888.8483
dave@radiosupplyco.com

A ride for clean air, healthy lungs and a tobacco-free tomorrow!
EMIGRANT TRAILS BIKE TREK
Three days cycling, two nights camping, one great cause!

"Breath California" is looking for Ham Radio Operators for a 3 day bike Trek September 10, 11 and 12.

Don't miss this one of a kind bike trek, which raises money to support a good cause - clean air, healthy lungs and a tobacco-free future! The 24th Annual ETBT will take place September 10-12, 2010, in Petaluma running out of the KOA Campground. Operators will be taken care of and provided meals.

Operators will be riding in "SAG" vehicles to provide health & welfare for the riders. Equipment should be a 2 meter mobile with magnet mount antenna. **Hand held radios will not work for this event due to the terrain.**

If you are able to assist on any of the days it would be fine. The working days go from 8:00 AM to about 4:00 PM. If there are sufficient operators, the days will be shorter.

Please contact Dennis Bartoldo, N6PMI to get signed up or if you need more details 916-645-1609 or by e-mail, dbart@garlic.com Handbook). This puts the dial readout actual frequency at 14.351 KHz. (97.301 out of band). All of the above applies to the side band in use. The opposite side band is a different story. Remember SSB = Single Side Band Suppressed Carrier. The carrier and unwanted sideband are still there but suppressed (97.307) but that is another topic for another day. I am sure we can get a lot deeper into this subject. I hope this makes my point.

Directive Systems DSFO-12 2 meter long yagi 17' 4" boom, 12.6db gain, n connector, tmatch $130/obo

Two 33ah AGM Batteries - have red/black terminal strip adapters. $25ea

Thanks,
Carl, WF6J
916 862-6802

SFARC BOARD MEETING MINUTES

JULY 9, 2010

Meeting started at 1800 hours at the Round Table Pizza in the Elm Center shopping Center in Auburn.

Present were Pres. Al NI2U, Vice Pres. Chuck AE6LR, Secretary Bill W6WEM, Treasurer Bob KD6WTY, Directors - Mary Anne KE6EST, George KG6LSB, and Gary KQ6RT. Richard WA6RWS was also present.

Mary Anne presented an update on the non-profit status. Everything is now straightened out and we are now no longer suspended.

The picnic was discussed set for August 14 at the Auburn Recreation Park in Picnic-Rec 2 area. Thank to Gary for his help.

Richard said the 220 repeater is up and running.

SFARC Club Meeting Minutes

July 9. 2101

Meeting started at 1930 hours. The Pledge of Allegiance and officer and club member and visitors were introduced.

Secretary Bill W6WEM reported on the officers meeting.

Treasurer Bob KD6WTY reported$1144.68 in the bank. Mary Anne created a spreadsheet to help follow income and expenditures.

VE Report – Casey W7IB reported 8 examiners, 1 passed general test.

Satellite Report – Greg KO6TH reported to look in the northeast Sky at 2200 hours and look for the space station. There is about a 10 minute window to view the station.

Sunshine Report – Richard WA6RWS reported that Bob, WA6Ull is still not doing too well and has an inoperable brain tumor. Our prayers and healing thoughts are with Bob.

Old Business – Mary Anne KE6EST explained the non – profit status reinstatement. The picnic was also discussed set for August 14 at the Rec Park off Sacramento St. Auburn.

New Business – It was suggested that the breakfast location be changed. This will be an ongoing discussion. It was suggested to look into changing some of the duties of the Vice President. This would require a By-Law revision.

Tech-Ten – Chuck AE6LR recapped Field Day. We ended up with 1090 points and everyone had a great time.

Meeting was adjourned at 2054 hours

Respectfully submitted by,
Secretary Bill Mahl W6WEM

VISIT OUR WEB PAGE AT

http://www.sf-arc.org/

CLUB BREAKFAST

Last Saturday of the month
Susie's Café, Cirby at Riverside,
Roseville 8:00 AM

SATURDAY JULY 31

SATURDAY AUGUST 28