

NOVEMBER 2007

THE MONTHLY NEWSLETTER of the SANTA CRUZ COUNTY AMATEUR RADIO CLUB

SHORT SKIP



K6V Veteran's Day

From the Veteran's Memorial Building, Santa Cruz, CA.

Nov 11-Nov 12, 1600Z-0100Z

7.250 & 14.280 MHz SSB, CW as operators are available.

QSL: SASE Pse. United Veterans Council, 846 Front St., Santa Cruz, CA 95060

Background: Built in 1932, the Veteran's Memorial Building is a registered historical landmark conveniently located in the heart of beautiful downtown Santa Cruz. The building reflects the historical nature of the city. While the facilities have undergone significant upgrades including a complete ceiling renovation in 2007, great care and appreciation for the building's exquisite charm and mission architecture have been maintained.

In keeping with Santa Cruz's unique social environment, the Veterans Memorial Building has hosted punk, reggae, and hip-hop acts from Santa Cruz and around the world. It is also the home of Bill Motto VFW Post sponsored Thanksgiving and Christmas dinners.

The building's radio room has been manned by volunteers for many years. Rick, N6GOW, keeps tabs on local radio traffic on 2m FM, and is a member of the California Emergency Rescue ARES net on 40m SSB. This event's radios span several generations and include a Swan 500, a Kenwood TS-520 and a Kenwood TS-480sat. The antennas include a 20m bazooka and a Cushcraft vertical.

The building's amateur radio station is actively soliciting new operators to keep the station on the air well into the twenty-first century.

The event's benefactor, the United Veterans Council, sponsors a community-based program for Veterans dealing with re-entry into society as an alternative to government remedies

Eric Clapton, Patty Boyd, and "Good Vibrations" Cause Paradigm Shift in Radio

It would have been really great to have been a fly on the wall, or "Smart Dust" on the Window Sill, in the labs of UC Berkeley's Nano Technology Labs recently.

The guys there have been doing radically cool stuff with Nano-Techology. One of their most recent COOL accomplishments was creating a complete radio receiver with a carbon Nano tube performing tuning, amplification, demodulation, (AM and FM) and Hi Fi audio output to earphones. Earlier research created a demodulator with a carbon nano tube, but now they have the complete radio function performed by the Nano tube... Just add a 1.5 volt battery and headphones (No small feat to a 200 nanometer device) and you can listen to "Good Vibrations", literally and figuratively.

The experimenters decided to transmit from across the room some cool, classics from Rock and Roll history to their nano-

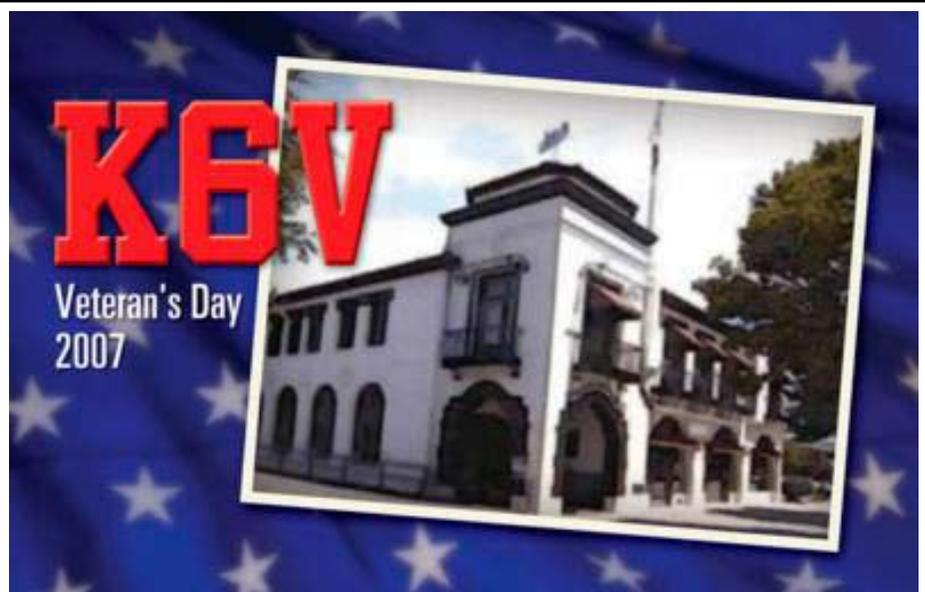
tube receiver. Early tunes heard on the Nanotube, Were "Layla" (Eric Clapton;Derek and the Dominoes) and Good Vibrations (Beach Boys).

If you are curious what the Patty Boyd link is (or who Patty Boyd is, or Eric Clapton is) Google: Eric Clapton + "Patty Boyd" and you will get the whole story. (Extra for experts: How does/did George Harrison (SK) figure into all of this?)

Basically, the nanotube is incredibly small, mere atoms thick, and under 100 nanometers long, and has mechanical resonances that are in the RF range.

Match its mechanical resonances to an RF carrier wave and it vibrates at that frequency. That is the (high Q) tuner function. Then charge it with a voltage, and place a conductor close to its tip, and you get a non linear, demodulated audio current from the system.

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CLUB MEETING FRIDAY NOVEMBER 16, 7:30 P.M.



Nov. Short Skip CAKE Crumbs

All headers During our session on October 27th we were pleased to welcome David WS2I for the first time. Another David WA6NMF brought a bag of radios that are sold in Europe at prices ranging from \$12 to \$45. These look like the FRS units over here but they have channels in the Amateur 70cm band. We may be entering an era of disposable ham gear. Much of the discussion centered on solar power. David brought along a typical panel approx 1ft x 3ft that generates 45Watts and sells for around \$200. This is the price point that was mentioned in the fine Nov 2006 QST article by Austin AB6VU. JV K6HJU described his desire to power a remote site with solar power to eliminate a diesel generator running 24x7. The 4KW load may be hard to justify at today's prices but no doubt we shall see a decline. If I understood correctly anyone can get a tax break by generating up to 10KW, which can be installed by the user providing the equipment is UL listed. Yet another Dave (W8FLL) showed a small PCB that included a Phase Locked Loop that is intended to stabilize the frequency of any (?) radio. Not sure how this works Dave so bring it along to another session. Why should it be called a Phase Locked loop instead of a W8Frequency Locked Loop.

—W6W0

Finding a Grid Square

One option is to surf to <http://cap.dyndns.org:8080> and click on any ham's callsign showing in the list there. Then scroll down to the second map, which is a maneuverable Google map which displays the (6 character) GridSquare and latitude and longitude for any place your mouse hovers over the map.

—73, Cap

Sheet Metal Horn act as Super Hearing Aid



Jim N9JIM and Goran, AD6IW with the new 1296 feed for the Jamesburg Dish.

Digital Mode Comparisons

In the current issue of QEX there is a very interesting article by Daniel HB9TPL comparing some of the more popular digital "chat" modes. While PSK31 has grown in popularity it has been my experience that MFSK16 was more robust. Daniel confirms that the more disturbed the path the better MFSK16 performs compared to PSK31. I explain this is because poor paths cause more signal irregularity in phase than in frequency. PSK thus suffers more than FSK

A few years ago my pal OE3ZK in Austria and I conducted tests comparing MFSK16 and CW over the long (>30,000 km) path on 20 meters. Gert sent alternating messages and progressively reduced his TX power. I copied MFSK16 using MixW software and my head for CW. I concluded that character error rates were about equal but copying very weak CW would have soon resulted in operator fatigue. Full marks to MFSK16 on this very challenging path.

Here is a short extract from a note by Daniel. Indeed MFSK is really impressive. On 80 m the difference on transatlantic qso's is incredible: nearly nothing but abroad irregular track in PSK with a few characters being decoded while it's possible to have

true chat in mfsk. I will test MT63 on a similar basis to the one used for the modes mentioned in the article and tell you the results. MT63 is less sensitive in Gaussian noise but probably much resilient to tough conditions.

Perhaps even more exciting for digital communications on HF is the prospect of using some schemes like JT65 designed for EME. I plan to try this at some point

—W6W0

Treasurer's Report

At the October 2007 Board of Directors meeting, Treasurer Kathleen McQuilling, KI6AIE, reported that the SCCARC treasury had \$5181.34 in cash and bank accounts. At that time all financial obligations had been met.

Some Cool Websites

Remote Tunable HAM Radios at:

www.remotehams.com

Lots of strange ideas that were proposed for radios:

<http://blog.modernmechanix.com/category/radio>

PARC about nanotechnology and solar that was very interesting:

<http://www.parc.xerox.com/events/forum/archive.php> May, 2006.



By Art Lee WF6P

CHATTER

Daughter Joyce, KN6RR, was alarmed to receive a report that her son Eric, a Federal firefighter, had been sent to Southern California to help control the many conflagrations. He spent about 3 weeks there and his unit was due to return to Sacramento. Unfortunately, while acting as a lookout, a burning tree collapsed the 30 foot cliff he and another fire fighter were standing on. In the resulting landslide, Eric's leg was crushed between a fallen tree and two large boulders. His right leg was badly injured and the cartilage in his knee, torn. His team members got him out and his leg was put in a cast. He was flown back to his Sacramento home base. When I relayed this story to Cap, KE6AFE, (retired as a fire captain in CDF), he stated that being a firefighter was not necessarily a safe profession. I'm sure that the people of California owe a lot to those men and women who risk injury to preserve and protect us.

As of 8:05 tonight (October 30th) we experienced a 5.6 trembler occurring in an area close to San Jose. I was in my home office when the all-too-familiar shake, rattle and rolling began. It was easy to recall the 1989 quake. On that particular afternoon, my son Randal, N6UZI, and I were in the worst possible position for a "quake" under his car tearing out a portion of his power steering. The car, a heavy Buick station wagon, was swaying back and forth and ready to topple off the jack stands. I rolled out from under on the driver's side and before I could get the words out of my mouth about the danger, Randy rolled clear on the passenger side. As an aircraft navigator flying P3s out of Moffett, he was well trained in emergency evacuation. Standing between his car and mine in the driveway, both cars began tilting back and forth out of phase. I quickly moved out as I was thinking about the proverbial "like being between a rock and a hard place." If they had been parked any closer together, I could have been squished. Then, as tonight, it was comforting to have K6BJ come on the air with a report. In 1989

all the telephones went dead. As a ham operator, I went door-to-door in my neighborhood, checking for damage or injuries.

Last week I had lunch with Dick Mack, W6PGL and Leon, AA6ZG. We sat in a café, reminiscing about Dick's 70 years in ham radio. Dick brought along his 1937 logbook. It smelled a bit musty, as did some of his texts on ham radio of that era. Ah yes, old wiring diagrams of tube type radios graced the pages, as well as photos of the undersides of these prized rigs. Thumb-sized condensers and resistors were crowded in between and behind the typical criss-crossing of wiring. No circuit boards here! Dick, a UC Berkeley grad, received his EE degree and was commissioned an ensign in the US Navy. He spent his time during the war working in Navy electronics labs developing radar.

With the writers: In Costco, I ran into Kathleen McQuilling, KI6AIE (ex-WN6KVH). She and I had a long chat about articles in QST magazine. She wrote "Getting Your Ham License Renewed After 30 years." It will be published in the on-line version only. "Shucks," she said, "I wanted to at least see it in print in the magazine" Congrats to you Kathleen. Also congrats to Ron, W6WO, for his beautifully written piece in the November issue of QST (Short Takes, pg 64). My "Morse Code: Still A Fun Way Of Communicating," is tentatively scheduled for the March 2008 issue of Monitoring Times.

They tweak the receiver "frequency" by hitting the nanotube with a high voltage which, in a controlled way erodes away the tip of the nanotube, shortening it. Tweak to length and you get your favorite FM or AM radio station. (currently limited though to 40 mhz or above) The system can demodulate FM or AM modulation.

To get your arms around the operative words, "Close", "Nanometers", "Nanotube", vibration, etc. The Nanotube sensor of the radio, is a lot longer than it is thick (think sewing needle) and somewhere between 300 and 1000 of the nanotubes placed end to end, would span the diameter of a human hair.

Electron Microphotos of the Nanotube are in the URLs listed below, with details.

Hmmmm...

I wonder if there are any biological structures, of these sizes in say, insect pests, that you could hit with RF that could control them.....bees.....

Check out:

<http://socrates.berkeley.edu/~argon/nanoradio/radio.html>

<http://pubs.acs.org/cgi-bin/sample.cgi/nalefd/asap/pdf/n10714839.pdf>

<http://www.technologyreview.com/Nantech/19666/>

http://nsf.gov/news/news_summ.jsp?cntn_id=110566

http://www.news.com/8301-10784_3-9808568-7.html?tag=nefd.only

<http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2007/11/01/BUTBT44A2.DTL&type=business>

All the Best, 73,

Pat Barthelow aa6eg@hotmail.com

Philco vacuum tube radio (1931)



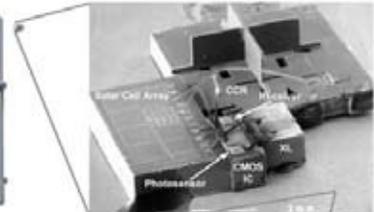
10 cm

Regency TR-1 transistor radio (1954)

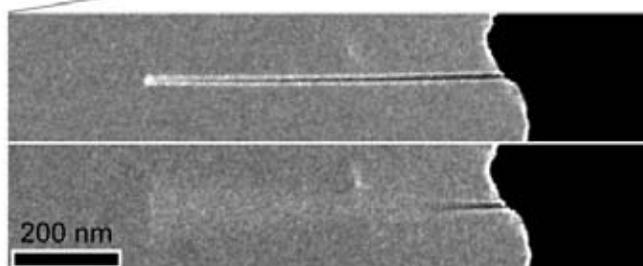


5 cm

Smartdust wireless sensor (2006)



1 mm



200 nm

Nanotube radio (2007)

SCCARC Board - 2007

President	Christopher Angelos	KG6DOZ	688-3562
Vice President	Pat Barthelow	AA6EG	
Secretary	Cody Adams	KG6YPK	
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	Bruce Hawkins	AC6DN	
	Vic Linderholm	AE6ID	476-5567
	Ron Skelton	W6WVO	477-1021
K6BJ Trustee	Allen Fugelseth	WB6RWU	475-8846

MONTEREY BAY REPEATER ACTIVITY

Santa Cruz County	K6BJ 146.790- PL 94.8 Santa Cruz KI6EH 147.945- PL 94.8 Watsonville K6BJ 440.925+ PL 123.0 Santa Cruz • SCCARC Net Monday 7:30 PM 146.79- /147.180+ /440.925+ linked • SCCARC 10 Meter Net Monday 7:00 PM 28.308 MHz USB
ARES Nets	SC County Wide ARES Tuesday 7:30 PM on 147.180+ PL 94.8 443.600+ PL 110.9 (Linked repeaters)
San Lorenzo Valley	WR6AOK 147.120+ PL 94.8 Ben Lomond • SLV Net Thursday 7:30 PM
Loma Prieta	AB6VS 440.550+ / AE6KE 146.835- PL 94.8 (Linked for net 94.8) • LP Net Tuesday 7:15 PM
Monterey	K6LY 146.97- PL 94.8 / 444.700+ PL123 (Linked) Monterey • NPSARC Net Wednesday at 8 PM on K6LY/R • Monterey ARES Net Wednesday 7:30 PM K6LY 146.970- (PL 94.9) • Newsline (Ham News) Broadcast Wednesday at end of NPSARC Net
LPRC	WR6ABD 146.640- PL 162.2 / 442.900+ PL 162.2 (winsystem) • LPRC Net Tuesday 8:00 PM 146.640-(PL 162.2) • Newsline (Ham News) Broadcast Wednesday at end of NPSARC Net

• Santa Clara Valley Section Traffic NET Tuesday 9:00PM 146.640- (PL 162.2)

FOR MORE INFO SEE: <http://www.k6bj.org/freq.html>

SCCARC Calendar of Events

SCCARC Meeting	Friday	Nov 16
Board Meeting	Friday	Nov 16
Club Luncheon	Saturday	Dec 15
SCCARC Meeting	Friday	Jan 18

MONTHLY MEETINGS.

The SCCARC Meets at 7:30 PM, on the THIRD FRIDAY of the each month (except December). Meetings are at Dominican Hospital, 1555 Soquel Drive, Santa Cruz.

NET CONTROL SCHEDULE

(Subject to Change)

10/15	Phil KE6UWH
10/22	Allen WB6RWU
10/29	Chris KG6DOZ
11/5	Tom K6TG
11/12	Cody KG6YPK

SHORT SKIP

Short Skip is published 12 times per year.
Free to members.

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SANTA CRUZ COUNTY AMATEUR RADIO CLUB
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SANTA CRUZ, CA 95061-0238

Special Deal: Holiday Luncheon and Membership Renewal

If you renew your membership when you pay for the December 15 holiday luncheon, you'll get an extra five (count 'em, five) tickets for the holiday luncheon raffle! That's in addition to the one raffle ticket that is included with your \$15 for the luncheon. For most of you, that will mean \$40, preferably paid ahead of time, either at a Club meeting or by mail (SCCARC, P.O. Box 238, Santa Cruz, CA 95061-0238). Of course, you may also pay at the door, but reservations must be made by December 7 in person at the Club meeting, by email to ki6aie@k6bj.org, or by phone to (831) 476-6303.

--Kathleen, KI6AIE, SCCARC Treasurer