SCCARA-GRAM

Santa Clara County
Amateur Radio Association

Volume 25, Number 12 December 2009

December Meeting

Our annual Christmas meeting will be a luncheon on Saturday December 19 at 12:00 noon. This year our luncheon will be at the Creekside Inn 544 W. Alma Ave, San Jose (one block west of Hwy 87).

This year we will be having a gift exchange. The way it works is that everyone brings a wrapped gift suitable for a man or woman costing about $10.00. This type of gift exchange is always a lot of fun to participate in.

Reservations need to be in by Friday Dec 4 (see sign-up sheet). Talk-in will be on our repeater. W6UU, 146.985-. Why not renew your membership at the same time? I'm looking forward to seeing all of you there!

73, Don K6PBQ

President's Prose

The Election of Officers and Directors was finalized at the November 9 meeting. The only change for 2010 is that Jeannie Felix (KG6YOR) will replace David Dippon (AE6YE) as Secretary. David declined to run for the office this time. Thank you, David, for your service, and congratulations to Jeannie. Jeannie will be Acting Secretary for the remainder of 2009. Thanks also to Joe Castellano (W6SNV) for coordinating the election process.

The November 9 meeting was also HOMEBREW NIGHT. In summary, the presenters for the evening were 13 SCCARA members and local hams who brought home projects to show to the group. We had 39 people in attendance, and 10 of those were visitors (who are always welcome, whether we show it or not!). The program was so successful that the Board later voted to make it an annual event.

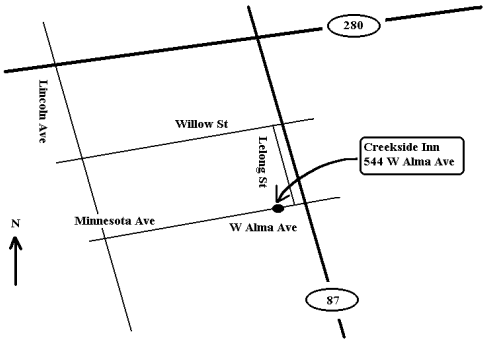
The presenters and their topics were:
1. Clark Murphy (KE6KXO) Budipole antenna clone.
2. John Parks (W6JPP) QRP rig (in work) & antenna tower.
3. Gary Mitchell (WB6YRU) PIC-controlled Fox Hunt transmitter/confuser.
4. Pete Parrish (KG6KWV) Voltmeter case, super-regen receiver diagram.
5. Don Village (K6PBQ) Dual headset control box.
6. Bob Schwimmer (N3FAW) Portable antenna constructed from a Pacific Antenna kit.
7. Ned Tufekcic (AC6YY) CW paddle, 6-band QRP transceiver,

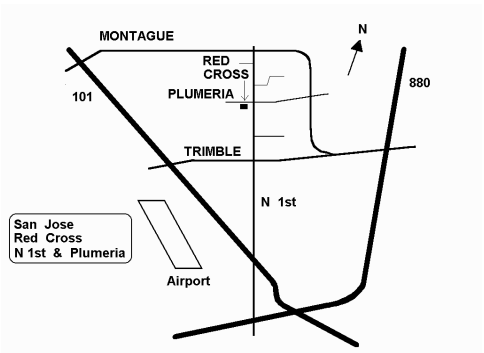
Calendar

12/19 **SCCARA General Meeting**–luncheon
12/14 **SCCARA Board Meeting**--(San Jose Red Cross, 7:30p, all are welcome)
1/11 **SCCARA General Meeting**

General Meeting

Day:	Monday, Dec. 19, 2009
Time:	12:00 Noon
Place:	Creekside Inn, 544 W Alma, San Jose
Featuring:	Annual meeting & Luncheon (reservations required)





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The deadline for articles is the last Monday of the month.

SCCARA was formed in 1921 and became a non-profit corporation in 1947. SCCARA is an affiliate of the American Radio Relay League (ARRL). The club station is W6UW.

Web page: http://www.qsl.net/sccara.

OFFICERS & DIRECTORS
(all officers are also directors)

President	Don Steinbach, AE6PM	867-3912
	e-mail: ae6pm@arrl.net	
Vice President	Fred Townsend, AE6QL	263-8768
	e-mail: fred@dctolight.net	
Past President	- - -	
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	e-mail: wa6qys@aol.com	
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	e-mail: ka6ymd@arrl.net	
Director	John Parks, W6JPP	309-8709
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Director	Gary Mitchell, WB6YRU	269-2924
	e-mail: wb6yru@ix.netcom.com	

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	e-mail: ka6ymd@arrl.net	
N0ARY BBS	Gary Mitchell, WB6YRU	269-2924
	e-mail: wb6yru@ix.netcom.com	

SCCARA REPEATERS

SCCARA owns and operates two repeaters under the call W6UU:
2 meter: 146.985 - PL 114.8
70 cm: 442.425 + PL 107.2
Phone auto-dial and auto-patch is available. The two meter repeater is located at Eagle Rock near Alum Rock Park in the foothills of east San Jose. The 70 cm repeater is located at the Regional Medical Center (formerly Alexian), east of downtown San Jose, north of 280 and 101.

SCCARA NETS

On our two meter repeater: Mondays at 7:30 PM, (not the second Monday--our meeting night). Coordinator: Don Village, K6PBQ. On ten meters, 28.385 MHz USB, Thursdays at 8:00 PM. Net control: Wally Britten, KA6YMD. Visitors welcome.

N0ARY PACKET BBS

SCCARA hosts the packet BBS N0ARY (Mt Umunhum). User ports: 144.93 (1200 baud), 433.37 (9600 baud), telnet sun.n0ary.org (login "bbs"). Sysop: Gary Mitchell, WB6YRU (packet info: www.n0ary.org/ncpa)

TELEPHONE NUMBERS

SCCARA contact Clark KE6KXO:	408 262-9334
ARRL/VEC Silicon Valley VE group, Morris Jones, AD6ZH:	408 507-4698

Keyer, Elecraft SWR/power meter, Elecraft dummy load, battery boost regulator, audio filter and Altoid boxes.
8. Del Harbold (K6JPX) Portable station in a toolbox.
9. Lloyd DeVaughns (KD6FJI) PSK transceiver for 20-meters built from a Small Wonder Labs kit.
10. Alvin Wong (W6ATW) Copper pipe J-Pole antennas for 2M & 440.
11 Herman DeKruyff (KI6ETZ) Simplex pocket repeater from MFJ.
12. Don Steinbach (AE6PM) Elecraft modules, battery boost regulator, 2.25:1 rf transformer, 30 dB coupler, rubidium frequency standard breadboard, remote antenna switch & antenna control panel, equipment shelf concept, FT-847 data I/O interface.
13. Fred Townsend (AE6QL) PVC antenna mast, log periodic Elk UHF/VHF antenna and SAG console.

Thanks to all of you for an outstanding program!

On a different note, HF band conditions might actually be improving. Clark Murphy (KE6KXO) and Larry Spector (W2QOV) reported good contacts on 15- and 20-meters. I haven't heard of any activity on 10 meters yet, however.

The next Board meting will be December 14, and December 19 is the date for the Holiday dinner meeting. Don't forget the 2-meter FM net on Monday nights, and the 10-meter SSB net on Thursday nights. Any licensee can operate on 28.385 MHz, the 10-meter net frequency.

73,
Don – AE6PM

Transmission Line Signal Sampling

When I was finalizing the mechanical layout of my remotely-operated 3-position coaxial antenna switch (Fig. 1), I wanted to include a way to bring out a sample of the signal being sent to the antenna. This would provide me with a convenient point to connect an oscilloscope, a spectrum analyzer, an rf voltmeter or a lab-quality power meter. The signal sample would be taken from the center conductor of the coaxial cable and the sampling ratio, for my application, should be known, constant, and repeatable.

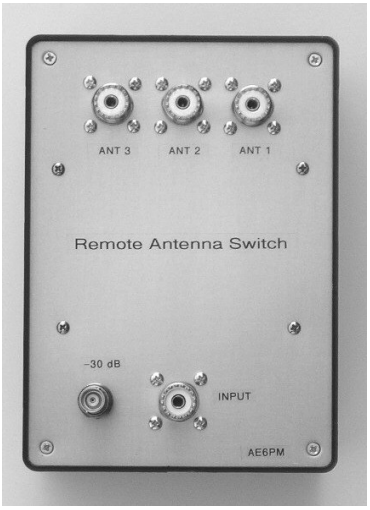


Fig. 1 – My remotely operated 3-position coaxial antenna switch.

Three methods of obtaining this rf sample were considered: (1) by induction from a wire physically near, and parallel to, the center conductor, (2) from a resistive or capacitive voltage divider physically connected to the center conductor, or (3) by transformer coupling from the center conductor. See Fig. 2.

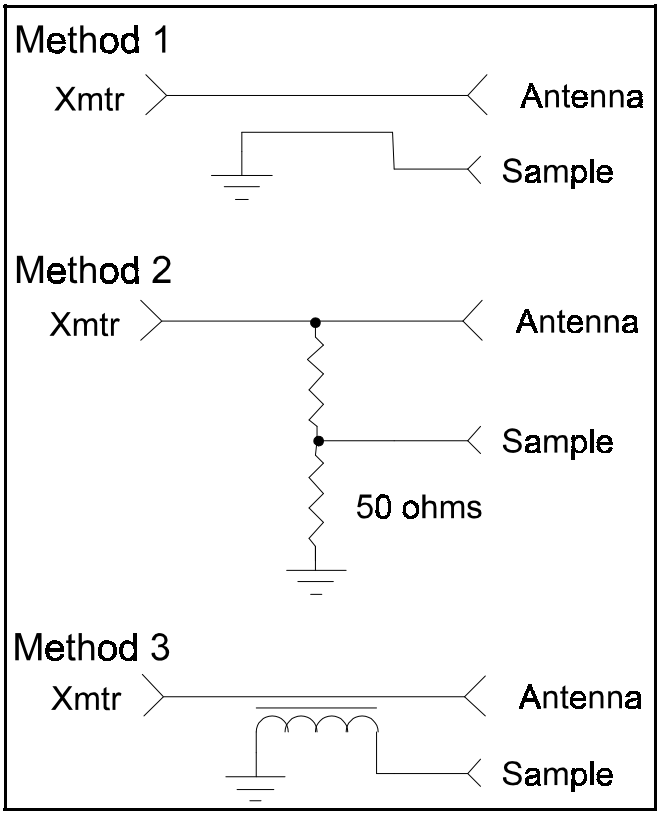


Fig. 2. Three methods for obtaining an rf sample from a coaxial transmission line.

The degree of coupling in Method 1 is highly frequency dependent and difficult to predict and control in this application. Bird and others precisely control the coupling between the two wires in their watt-meters to provide power readings with a reasonable degree of absolute accuracy. SWR meters can use this method because they sense the voltages at either end of the same wire (or two identical wires), and use the ratios of the voltages thus eliminating the need for absolute accuracy.

Method 2 is simply a voltage divider and is the easiest to implement. It doesn't matter if the divider circuit is constructed from capacitors or resistors, although resistors are usually the component of choice. The resistors must be noninductive in order for the sample to be independent of frequency. Some of the transmitted power is sacrificed in the divider circuit, and the resistors must be capable of dissipating this.

Method 3 relies on the turns ratio of a transformer. The transformer typically uses a high-permeability ferrite toroid core and the center conductor of the coax passes through the center of the core to form a single-turn primary "winding". The number of turns in the secondary winding determine the sampling ratio. The load connected to the secondary is reflected back to the primary as the inverse square of the turns ratio, so there is some small amount of transmitted power lost. The transformer also provides dc isolation offering some protection for that magical moment when a failure in a power amplifier sends 2,400 volts down the coax center conductor.

Ok, now what? I decided that a sampling ratio of 30 dB, providing a power ratio of 1:1000, would be suitable. Thus, 1 kw in the transmission line would yield a 1-watt sample, and 100 watts would provide a 100 mW sample. A 30 dB or 1000:1 power ratio is a 31.62:1 voltage ratio. The sample should be delivered from a source impedance of 50 ohms or less. The instrument connected to the sample port should have an impedance of 50 ohms or more.

Given all of the above, Method 1 is discarded. Method 2 requires a series resistor of about 765 ohms. The power dissipated in that resistor is about 6 watts for a transmitter power of 100 watts and about 61 watts if the transmitter power is 1000 watts. Assembling noninductive resistors to achieve that resistance and dissipate that much power isn't a trivial undertaking.

That leaves Method 3. The secondary winding needs to be 31 turns on the toroid transformer core. Each passage of the wire thru the center of the core is 1 turn, so the theoretical 31.62 turns isn't possible. I used 31 turns of #28 enameled wire on a FT-50-75 toroid. The completed coupler is shown in Fig. 3. It is made up of a piece of #16 solid wire slid thru a piece of RG-8X dielectric slid into a piece of 3/16" brass tube which is covered with 3/16" shrink tubing. This assembly goes thru the center of the toroid. The brass tube is grounded at one end. The #16 wire becomes the coax center conductor and the brass tube is the shield. The intent is not so much to simulate a 50-ohm transmission line, but to have a 30 dB coupler without capacitive coupling or arcing.

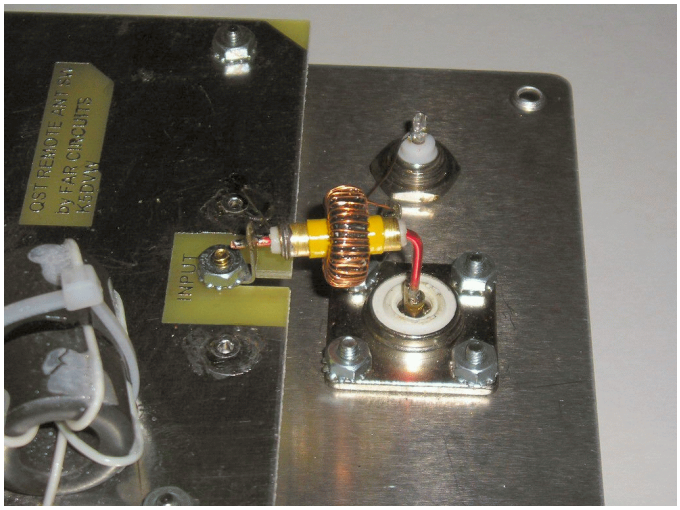


Fig. 3 – The 30 dB coupler as built into the antenna switch.

Figure 4 shows an alternate method of construction. Here I used 31 turns of #22 wire on a FT-82-61 core. The core is placed over a piece of RG-8 coax approximately 2" long. The coax shield is grounded at one end to serve as a Faraday shield. The finished product is housed in a small aluminum box with SO-239 connectors for the coax and a BNC(f) connector for the sample.

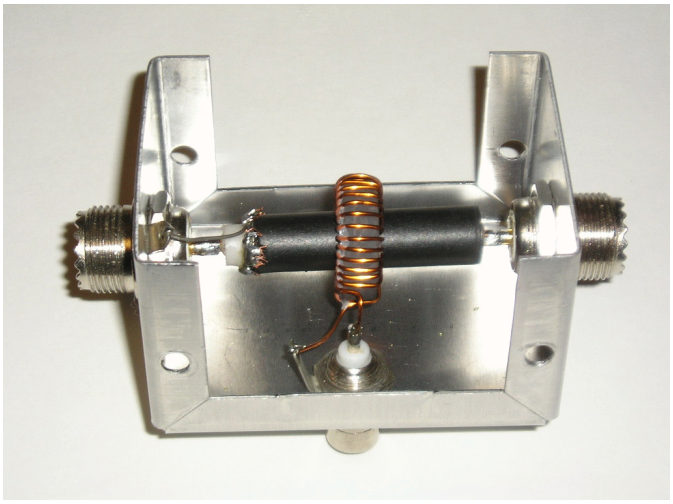


Fig. 4 – A 30 dB coupler packaged as a stand-alone test aid.

Don Steinbach, AE6PM

ARRL News

From *The ARRL Letter*, November 12, 2009

NOW YOU KNOW!
US CALL SIGNS NOT ISSUED BY THE FCC

If you're an American ham, chances are that your call sign was issued by the Federal Communications Commission. A "no brainer," right? Well, if you're an American ham who happens to be stationed at Guantanamo Bay or at one of the US bases in the Antarctic, your call sign is not issued by the FCC -- it's issued by the base commander. Guantanamo Bay (or Gitmo as it's commonly called) uses the KG4 prefix, followed by a two-letter suffix; this block is reserved exclusively for American hams at Gitmo. As for Antarctica, the Antarctic Treaty <en.wikipedia.org/wiki/Antarctic_Treaty_System>, signed on December 1, 1959 (and entered into force on June 23, 1961), established the legal framework for the management of Antarctica, including allocation of amateur call signs; the National Science Foundation received their block on July 1, 1959. US military hams in Japan and Korea are also issued special call signs:

- KA2AA-KA9ZZ -- reserved for US Army-authorized amateur stations in Japan. - KC4AAA-KC4AAF -- reserved for the National Science Foundation's use at the South Pole <antarcticsun.usap.gov/features/contentHandler.cfm?d=1701>. - KC4USA-KC4USZ -- reserved for US Navy-authorized amateur stations at their Antarctic bases. - KG4AA-KG4ZZ -- reserved for US Navy-authorized amateur stations at Guantanamo Bay). <members.visi.net/%7Everb/index.html> - KL9KAA -- KL9KHZ -- reserved for assignment to US personnel stationed in Korea. - The 40 call signs having the first two letters AF, KF, NF or WF and the letters "EMA" following a numeral are available to the Federal Emergency Management Agency (FEMA).

The FCC once issued call signs to hams who lived in the Caroline Islands and the Marshall Islands. Even though these entities -- former United Nations Trust Territories -- now have their own sovereignty (and DXCC prefixes), the FCC will not issue call signs in the following blocks:

- KC6AA-KC6ZZ -- KC6 was two DXCC entities: The Eastern Caroline Islands and the Western Caroline Islands. The Eastern Carolines became the Federated States of Micronesia (V6) and the Western Carolines became the Republic of Palau (T8). - KX6AA-KX6ZZ -- the former Marshall Islands, now the Republic of the Marshall Islands (V73).

You can find out more <wireless.fcc.gov/services/index.htm?ob=call_signs_3&id=amateur&page=1#2&ref=> on the FCC's Web site.

Now you know!

From *The ARRL Letter,* November 19, 2009

ADVOCACY: END IN SIGHT FOR "THIRD BATTLE OF BULL RUN?"

ARRL Chief Executive Officer David Sumner, K1ZZ, once termed the battle of Broadband over Power Lines (BPL) in Manassas, Virginia as the "Third Battle of Bull Run." While the war against harmful interference to Amateur Radio via BPL is not yet over, the battle in Manassas might soon be coming to an end.

In a Special Meeting on Monday, November 16 of the Manassas City Council, the Council voted "To allow the [City of Manassas] Utility Commission to make a recommendation to the [Manassas] City Manager as part of the FY 2011 Budget regarding the decision to continue offering Internet service; additionally, staff was instructed to discontinue all marketing and advertising of Internet service." This motion passed 4-2.

At the meeting, Manassas Director of Utilities Michael Moon told the Council that "it is not cost-effective to continue the internet service on the Main.net BPL communication system as a stand-alone cost center" and that the City "need[s] to make the decision for internet service in the context of what communication system will be used for the City's AMI [Advanced Metering Infrastructure]." Read more here <www.arrl.org/news/stories/2009/11/19/11206/?c=1>.

NOW YOU KNOW!
IT'S ALL GREEK TO ME

Ask any high school physics student and they'll tell you that electrons govern pretty much everything we do. We call electrons in motion an electrical current, and those radio waves that we hams are so fond of are the result of high frequency electrons traveling in our antenna conductors. Think of a 40 meter wave as an accidental tourist who wants to go somewhere (somewhere nice and warm, maybe a rare DX station). But how to get there? It needs some mode of transport -- think of electrons as the transport providers.

We use our transmitters to move the electrons in our antennas to-and-fro to produce radio waves, hopefully to that rare DX destination. When the radio waves get there, they set electrons in another antenna in motion. That current -- electrons in motion -- is amplified and detected at the receiving location and a QSO is made.

But why do we call them electrons? The ancient Greeks noticed that amber attracted small objects when rubbed with fur; apart from lightning, this phenomenon is thought to be man's earliest

known experience of electricity. Back in the year 1600, the English physician William Gilbert -- in his treatise De Magnete -- coined the New Latin term electricus to refer to this property of attracting small objects after being rubbed. Both electric and electricity are derived from the Latin e-lectrum, which came from the Greek word ήλεκτρον (e΄lektron) for amber.

Now you know!

Meeting Minutes

General Meeting, Nov. 9, 2009

SCCARA Membership Meeting
Kaiser Santa Clara

The meeting was called to order at 7:35 pm by Don Steinbach.

The members in attendance introduced themselves.

Don Steinbach made a number of announcements:

1. The December meeting will be luncheon the 19th. 2. Don Village asked for headcount of those attending the December 19th luncheon. 3. The SCCARA board of directors will meet next Monday. 4. Membership renewals are due on December 31st. 5. The club station will be open for the phone portion of ARRL Sweepstakes contests on November 21st.

Election ballots were distributed to club members, collected, and counted.

A number of club members presented homebrew project they had built.

David Dippon announces the election results. The following members were elected:

Don Steinbach, President
Fred Townsend, Vice President
Ned Tufekcic, Treasurer
Jeannie Felix, Secretary
Lou Steirer, Director
Gary Mitchell, Director
Wally Britten, Director

The meeting was adjourned at 9:44 pm

Respectfully Submitted, David Dippon, Secretary

Board Meeting, Nov. 16, 2009

Unapproved Minutes, Red Cross, 2731 N. 1st Street, San Jose, CA

The meeting was called to order at 7:46 pm as an unofficial discussion group by Don Steinbach.

Attendance
Board Members: Don Steinbach, AE6PM, President Fred Townsend, AE6QL, Vice President David Dippon, AE6YE, Secretary Jeannie Felix, KG6YOR, Secretary Elect Lou Steirer, WA6QYS, Director, Wally Britten, KA6YMD, Director

Guests: David Paul, AE6MV Gwen Steirer, KF6OTD

Excused Absences: Ned Tufekcic, AC6YY, Treasurer Don Village, K6PBQ, Trustee John Parks, W6JPP, Director John Glass, NU6P, Director Gary Mitchell, WB6YRU, Director

Announcements
Don Steinbach asked board members to review agenda. Don announced deadline for SCCARA-GRAM is no later then 11/30/09.

Old Business

Fred is working on ARRL Mailing lists and labels. He cautioned be careful what you ask for because an unfiltered request for labels could amount to tens of thousands of labels. As an alternative Lou and Clark are searching for new members. He also indicated our section listing shows only a contact name without a phone number.

Don Steinbach to check the ARRL section for our club and update contact info.

Roof over storage units to be discussed at next board meeting.

New Business
Because of a lack of a quorum the minutes of previous meetings could not be approved.

Treasurer Absent

Election Results – Only change in the board is New Secretary Jeannie Felix, KG6YOR replacing David Dippon.

Revised Membership form: Any change to By-Laws to be discussed later due to Gary being absent.

Misc. Reports and Announcements

Reviewed Nov. 9 Presenters and Topics

Plan to make home brew night as annual event on election night

Vice President's Report: Fred Townsend announced that he will be getting a speaker for January.

Repeater: Wally Britten had nothing new to report. Both 2 meter and 440 seem to be both working fine.

Webmaster: Wally Britten Had nothing new to report.

Other: It was discussed whether to Send newsletters to meeting attendees that aren't members. Secretary to extract names from attendance roster and get addresses & send list to Don Steinbach, President.

Meeting Adjourned at 8:38 pm

Next Board Meeting changed to Dec. 14, 2009 instead of Dec. 21, 2009 because of Christmas Holiday.

Submitted By, Jeannie Felix, Acting Secretary

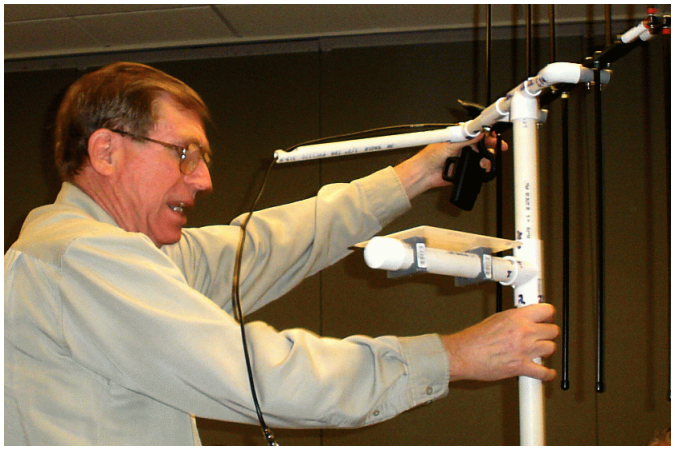
A few shots from our "members home brew" meeting...

Photos from Teresa Nemeth
Captions from Lou WA6QYS

Clark, KE6KXO, with Buddipole HF antenna for quick and easy portable operation.

Lloyd, KD6FJI, with 20 Meter PSK 31 transceiver kit.

Alvin, W6ATW, with copper pipe dual band 144/440Mhz J-Pole antenna.



Fred, AE6QL, with ELK dual band 144/440Mhz log periodic DF'ing antenna on a portable PVC pipe mount.

{Surprisingly, there were quite a few presenters. Not all are shown here. Just a sample was submitted. – Editor}

Need Help?

Amateurs have a long history of helping each other. An experienced amateur who helps another is traditionally called an "Elmer." If you have a question or problem, you are encouraged to ask one of SCCARA's Elmers. Below is a list of topics including who to contact for each.

If you consider yourself to be reasonably competent in at least one area of amateur radio and would be willing help others, please fill out an Elmer form from the club secretary.

Antennas, feed-lines, tuners: WB6EMR, W6JPP, K6PBQ, WB6YRU
Lightning protection, grounding: WB6YRU
Station set-up, equipment: K6PBQ, W6JPP
TVI/RFI: WB6YRU
Homebrew projects, construction: KD6FJI, WB6YRU
Computers: older IBM PC: WB6YRU
Packet Network (BBS, forwarding): WB6YRU
Code operating and installations: WB6EMR, K6PBQ
DX (long distance/propagation): WB6EMR
Emergency operating/preparedness: WA6QYS
HF operating techniques (SSB, CW): WB6EMR, K6PBQ
Classes/license upgrading: W6ACW
Legal/FCC rules: WB6YRU
SCCARA (club inner workings): K6PBQ, WB6YRU, WA6QYS
EchoLink: KK6MX

W6ACW, Ed Hajny, (408) 739-6105

WB6EMR, James D. Armstrong, Jr.,
evening & msg: (408) 945-1202

KD6FJI, Lloyd DeVaughns,
(408) 225-6769 e-mail: kd6fji@arrl.net

KK6MX, Don Apte, (408) 629-0725
e-mail: kk6mx@aol.com

W6JPP, John Parks, (408) 309-8709
e-mail: w6jpp@arrl.net

K6PBQ, Don Village, (408) 263-2789
e-mail: donvillage7@yahoo.com

WA6QYS, Lou Steirer, (408) 241-7999
e-mail: wa6qys@arrl.net

WB6YRU, Gary Mitchell, (408) 269-2924
packet: home BBS NOARY
e-mail: wb6yru@ix.netcom.com

Newsletter Notes

YEA! ☺ It's been a *very* long time... too long.

Many years ago it was common to find articles from members on technical subjects related to amateur radio in the *SCCARA-GRAM*. By the time I took over as editor, many moons ago, it had dwindled to just one now and then. Soon thereafter, it had almost ceased completely.

Amateur radio is a technical hobby after all, electronics and the science of radio communications is the heart and soul of it. To me, that's most of the appeal. I wish there were at least one such article in every issue. Alas, that just hasn't been the case.

A big thank you to Don, AE6PM, for his article on transmission line signal sampling! It was a nice Christmas present for the *SCCARA-GRAM*, like a rain after a drought. Let's have more.

If the November meeting is any indication, it appears the time is right for this sort of thing. I was very pleasantly surprised at the large turnout of members working on projects.

73, Gary WB6YRU, editor

Annual December Meeting

Our annual December meeting will be a luncheon on Saturday December 19, at the Creekside Inn 544 W. Alma Ave, San Jose. We will have a choice of three entrees,$25.00 each. Reservations need to be in by Friday, December 4. Talk in on our repeater W6UU, 146.985-.

I'm looking forward to seeing all of you there. Why not renew your membership (back cover) at the same time. See December meeting article for information on the gift exchange.

Don K6PBQ

For the annual meeting in December, Sign me up for the following lunch(es), $25 each:

_____Coulette Steak _____Chicken Marsala _____Salmon

Name:_____ Call:_____ Total for lunch (es):$_____

Give this form (or copy) with payment to the Treasurer or mail it to:

SCCARA
PO Box 6
San Jose, CA 95103-0006

SCCARA
Santa Clara County Amateur Radio Association
PO Box 6
SAN JOSE CA 95103-0006

Affiliate of the ARRL,
American Radio Relay League

FIRST CLASS

ADDRESS SERVICE REQUESTED

SCCARA Membership Form for 2010

If none of your info has changed, fill in name and call only

Name: _____ Call: _____ Class: E A G T+ T N

Address: _____ Licensed since (yr): _____

City: _____ State: ____ Zip: _____ - _____ Licence Expiration Date (mo/yr):

Telephone: ( ) _____ ☐ New Member ☐ Renewal _____
☐ I'm also a member of the ARRL

E-mail: _____

Memberships begin January 1 and expire December 31.
If renewing: annual membership dues (base rate) are: $20 Individual, $25 Family, $10 Student (under 18)
For new members:
If joining in January: base rate
If joining in February through October: base rate x (11 - month) x 10% (e.g. for June, that would be: base rate x 50%)
If joining in November or December: free for November and December if paying the base rate for the following year

$ _____ **Dues payment** for: ☐ individual ☐ family ☐ student

For family memberships (at the same address), please include a separate form for each family member.

I want the newsletter by: ☐ U.S. Mail ☐ internet (make sure your e-mail address is legible and correct)

Give this completed form (or copy) with payment to the Secretary or Treasurer at any meeting or mail to the club address.

Rev. 6/16/2008