SCCARA-GRAM

Santa Clara County
Amateur Radio Association

Volume 27, Number 7 July 2011

President's Prose

Field Day has come and gone. I hope all the participants had an enjoyable time, and a special thanks to those of you that were there on Friday and stayed late on Sunday to make it all happen, not to mention all of the preparations ahead of time. I wasn't there this year, so if anything went wrong it wasn't my fault.

The electronic flea market at DeAnza College that we hosted on May 21 was a success. There were 118 vendors and we cleared $1216.15 after all expenses. See the General Meeting Minutes in this issue for the details.

Part II of a multipart article on transmission lines and SWR should appear in this issue of the SCCARA-GRAM, provided Gary can work it in. There will be four or five parts in all. I hope you find them informative.

Don't forget the 2-meter FM net on Monday nights, and the 10-meter SSB net (28.385 MHz USB) on Thursday nights. Anyone who has a license can join in.

73,
Don, AE6PM

A Review of the Powerwerx Switching Power Supply, Model SS-30DV

By Fred Townsend, AE6QL

At the home QTH I use laboratory supplies to power my station. The supplies are variable voltage with variable current limiting, almost totally noise free, and very well regulated. It doesn't matter that they only supply a maximum of 10 amps because they are always floating across my station batteries. If PG&E fails or the transmitter requires more than 10 amps, the energy is automatically supplied by the batteries. This arrangement has served me well for many years.

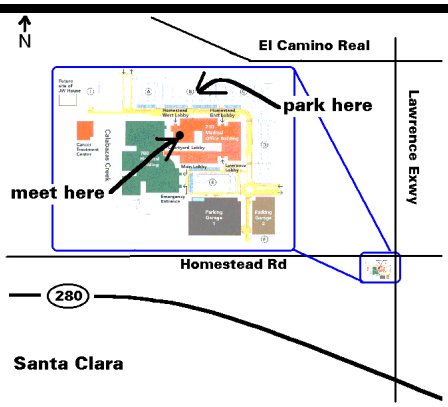
My problem begins when I want to leave home. The rig fits in the suitcase but the power supply and battery combination

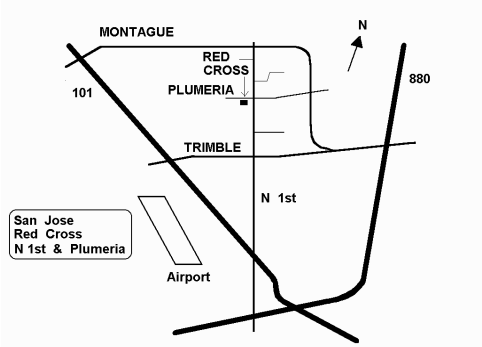
Calendar

7/9 **DeAnza electronic flea market**
7/11 **SCCARA General Meeting**
7/18 **SCCARA Board Meeting**--(San Jose Red Cross, 7:30p, all are welcome)

General Meeting

Day: Monday, July 11, 2011
Time: 7:30 PM
Place: Kaiser Santa Clara, Rm 196,1
Featuring: *{to be announced}*





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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.

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(all officers are also directors)

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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

is bulky and way too heavy so I decided to pick up a switching supply for portable operation. My initial requirements were simple. The supply should deliver a minimum of 13.8 VDC at up to 22 amps, be acoustically and electrically quiet, and finally light weight. It would also be nice if the supply could charge a battery too. However to charge a battery I would need meters with 3 ½ digits of resolution to set the correct voltage and monitor current. Mechanical meters are accurate to only two digits. Therefore I included the requirement for four place digital metering. After much searching I finally found a supply with a digital readout that fully met my requirements. The trouble was it cost over $500. Too much for my budget! A compromise solution was needed.

I reasoned if the supply was fixed voltage, then it would never need to be set. With no setting, no metering was needed. Reducing the requirements would reduce the cost and perhaps the weight.

The Powerwerx Model SS-30DV seemed to meet all my redefined requirements except for a noise and ripple specification of 100 mvpp. The output voltage is fixed at 13.85 volts and the current is rated at 25 amps. The supply would also do 30 amps for up to 5 minutes. There is a 40 mm whisper fan. It's protected for overcurrent and over temperature in case the fan fails. Dimensions are 6.1 x 5 x 2.5 inches. Weight is less than 3 pounds. Terminals include two pair of Power Poles in front and banana binding posts in the rear. Input voltage is 115 or 230 Vac at 50 or 60 Hz. Price $119 at the candy store.

While a 100 mvpp of noise wasn't that bad, I was used to a lot better with my lab supplies. I connected my Fluke voltmeter and fired up the supply. The output, soft started, hovering at 13.6 volts for a moment before reaching 13.90 volts. Noise and ripple were very low at around 18 mvpp. This surprised me given the 100 mvpp specification. I then keyed a 10 amp load on and off. Surprisingly neither the output voltage nor the noise and ripple varied. This suggests the supply is very well regulated.

I would give this supply a grade of A+ because of its top performance and low cost.

One caution: The supply comes factory set for 230 volt operation. Be sure to reset to 115 volts before installing.

de Fred, AE6QL

SCCARA's turn at May Electronics Flea Market

The May De Anza Electronics Flea Market was hosted by SCCARA. The date having been shifted by a week from the normal 2nd Saturday of the month to the 3rd Saturday due to a scheduling conflict at the college led to concerns of a light turnout. Thanks to ASVARO's and our own diligent publicity of the changed date the participation by both vendors and buyers was at par with the numbers of the previous month.

Thanks to stalwart SCCARA members Don K6PBQ, John W6JPP, Greg KF6FNA, Andy KI6ZHC, Mike KB6LCJ, Mike AG6DG, Ned AC6YY, John W6HW, Clark KE6KXO, Gary WB6YRU, Rohan KJ6LXV, Dona KI6DAR, Don AE6PM, and Joe W6SNV we managed to make a respectable profit for the club.

It is a pleasure working with such dedicated fellow SCCARA members who do not think twice about volunteering on some club activity or project.

Lou WA6QYS

Field Day 2011

HF Phone Station. Wally KA6YMD at the mic, Greg KF6FNA logs contacts on the computer.

The phone station. It's hard to see here, but the rig is a K3 with the companion "waterfall" 30 kHz wide frequency spectrum analyzer. Once you got used to how a SSB station appears on the analyzer, it became a snap to see stations within 15 kHz of your frequency and jump on over to them.

GOTA Station. Johnali Westmoreland at the mic, with a little help from dad, John KJ6HCV.

CW Station. Ned AC6YY

Antenna tower at the phone sation... On the beam, it looks like we put the driven element closer to the director than the reflector–that explains the funny pattern we were getting.

Rohan KJ6LXV attempts to receive a satellite, with Gary WB6YRU assisting.

More on Transmission Lines and SWR

Part II

This is the second of a multipart article dealing with transmission lines and SWR. This article defines and explains many of the terms that are essential to understanding transmission lines and SWR.

Transmission Line – The physical wire or cable that connects the transmitter or receiver or antenna tuner to the antenna. The transmission line might be coaxial cable, open-wire line, twinlead, or just a wire. We like to think of the transmission line as a simple hose where what goes into one end comes out the other, unchanged. Reality is, the transmission line almost always acts as a transformer and the impedance looking into the transmission line at the transmitter is not the impedance seen at the end of the transmission line connected to the antenna. This being the case, the SWR at the transmitter is not the same as the SWR at the antenna.

Characteristic Impedance (Zo) – The transmission line is an RLC network with a characteristic impedance Zo, also known as the surge impedance. Zo is a function of the per-unit-of-length parameters of resistance R, conductance G, inductance L and capacitance C. The characteristic impedance of a specific type of line is a function of the conductor size, the conductor spacing, the conductor geometry, and the dielectric constant of the insulating material used between the conductors. (Practical Antenna Handbook, Fourth Edition, page 64).

Standing Wave Ratio (SWR) - A measure of the power delivered to the antenna vs. the power reflected back toward the transmitter from the antenna due to an impedance mismatch between the antenna and the transmission line. The difference is the power delivered into the antenna. The SWR seen at the transmitter end of the transmission line is almost never the SWR seen at the antenna because losses in the transmission line make the return loss appear higher than it really is, making the SWR appear lower than it really is. Textbooks may claim that the SWR is the same everywhere on the transmission line. That's only true if there is no loss in the transmission line. There is always some loss in the transmission line although it might be insignificant, or it might not be. In general, the SWR measured at the sending end of the transmission line will appear lower (better) than it actually is at the antenna. SWR is a ratio that can be based on measurements of voltage (VSWR), current or power.

Forward (Incident) Power (P_F) – The power sent down the transmission line to the antenna from the transmitter. Also called incident power. Losses in the transmission line result in less power delivered to the antenna than was input into the transmission line.

Reflected Power (P_R) – The power sent back to the transmitter (reflected) from the antenna due to an impedance mismatch at the antenna. If the impedance of the antenna where the transmission line is connected is exactly equal to the characteristic impedance of the transmission line, all of the power is accepted by the antenna and none is reflected back to the source. In that case the reflected power is zero and the SWR is 1.

Reflection Coefficient (ρ) – The ratio of the reflected voltage (or current) at a given point on the transmission line to the incident voltage (or current) at the same point on the transmission line. It's also the square root of the ratio of the reflected power to the incident power at the same points on the transmission line. The reflection coefficient is usually represented by the Greek letter rho, ρ.

Return Loss (RL) – The difference between the incident power to the antenna and the reflected power from the antenna. If all of the power delivered to the antenna was accepted by the antenna, there would be no power reflected back to the source, the return loss would be infinite, and the SWR would be 1. The return loss is also expressed as the absolute magnitude of the reflection coefficient expressed in dB, or $RL=-20 \log|\rho|$.

Matched-Line Loss – The power lost in the transmission line when the load impedance is equal to the characteristic impedance of the line. The manufacturer usually specifies this in dB/100 ft. It's directly related to the matched-line attenuation and the two terms are often used interchangeably. The manufacturer has no clue as to how you are using the transmission line, so it simply gives you the matched-line loss and you can calculate the rest for yourself.

Wavelength (λ) – The distance between two like points on a waveform, such as the distance between successive positive peaks or between zero-crossings. The wavelength is equal to the velocity of propagation (the speed of light) divided by the frequency.

Velocity Factor (VF) – An electromagnetic wave, or radio wave, in free space, travels at the speed of light or 299,792,458 meters per second or approximately 300,000,000 meters per second. At that speed, we say the velocity factor (VF) is equal to 1. The wave travels slower in a transmission line and the VF is less than 1. The manufacturer usually specifies a nominal VF. There are times when the exact VF for a given piece of coax needs to be determined, and that can be done experimentally. The VF for coax cable typically ranges from 0.66 to 0.86.

Reactance ($\pm jX$) – The opposition to the flow of alternating current. Capacitors and inductors exhibit reactance. Reactance, like resistance, is measured in ohms. The reactance of a capacitor decreases with frequency. The reactance of an inductor increases with frequency.

Impedance (Z) – The combined opposition to the flow of current in a circuit that contains both resistance and reactance. If the reactance is zero, the impedance is simply the resistance. If the reactance is not zero, the impedance is the vector sum of the resistance and reactance, usually expressed as a complex number (explained later) of the form $Z = R \pm jX$ where R is resistance in ohms and X is the reactance in ohms, positive for inductive reactance and negative for capacitive reactance. When we speak of impedance, we usually mean the magnitude of the impedance, such as 50 ohms, without regard to the individual resistive and reactive parts.

Conjugate match – Matching a source to a load such that the resistive terms are equal and the reactive terms cancel. For example, if the load impedance is $R + jX$, then the conjugate-matched source impedance would be $R – jX$.

Transmission line equation – The input impedance of a real, lossy transmission line can be computed if the following parameters are known:
- the complex load impedance at the end of the line
- the characteristic impedance of the line
- the physical length of the line
- the complex loss coefficient
- the matched-line loss attenuation constant
- the phase constant of the line

More about this later. The equation of interest can be found on page 24-12 of The ARRL Antenna Book 21st Edition, among other places. A similar equation for a lossless line is on page 31-8 of the Antenna Engineering Handbook (Henry Jasik, Editor, first edition, McGraw Hill Book Company).

Feed-point Impedance and Radiation Resistance – The impedance at the feed-point of the antenna appears as a resistance in series with a capacitive or inductive reactance. At resonance, the reactance is zero. The resistance is the radiation resistance of the antenna plus any (small) loss resistance in the antenna conductors. The radiation resistance is the part of the antenna impedance that can be thought of as actually radiating the power fed to the antenna. The reactive part of the impedance does not absorb or radiate any power, although it can result in high currents and voltages.

Antenna Tuner – A 'box' containing inductors and capacitors that can be configured to change the impedance looking into the transmission line toward the antenna to something that the

transmitter is happy with (typically 50 ohms). It does not tune the antenna, it's simply a matching network.

Complex Numbers – If we're going to be dealing with impedance, we need to get a handle on the so-called complex numbers. Let me be the first to assure you that Complex does not mean Complicated. Complex numbers consist of two components: a real part and an imaginary part. Imaginary numbers are just as real as real numbers, we just handle them differently. Dealing with complex numbers requires that we use a little basic trigonometry, or else graphically by drawing scaled drawings on paper – either way is fine.

Let's use the graphical approach and start with a piece of paper. Graph paper would be good. Make a mark near the center. Starting at that mark, draw a horizontal line to your right (the +X axis). Label that line R. We could also draw a line to the left of center (the –X axis) and label that –R, but since negative resistance isn't going to be showing up here we can forget about that. Next, draw a line vertically upward from the mark at the center. Label that line (the +Y axis) +jX. Finally, draw a line vertically downward from the mark at the center. Label that line (the –Y axis) –jX. We're going to use this graph to plot points of the form R + jX (or R – jX) where R is out along the horizontal axis and jX is on the vertical axis with +jX upward and –jX downward. Having plotted this particular point, the magnitude of the impedance is the length of the vector (another new word) from the origin (where the vertical and horizontal axes cross) to that point.

Maximum power transfer theorem – The essence of the theorem is that an equal amount of power will be dissipated in the load and the source if the load resistance is equal to the Thevenin/Norton resistance of the source. For alternating current the load impedance would need to be the complex-conjugate of the source impedance.

It's a common misconception that maximum power will be delivered from the transmitter if its Thevenin-equivalent output impedance matches the transmission line impedance. If that was the case, then your 100 watt transmitter would deliver 50 watts to the transmission line and burn up the other 50 watts in its internal circuitry. The output impedance of the transmitter, as designed, is much-much less than 50 ohms to deliver maximum power to the transmission line and dissipate minimum power internally. Consider your home stereo amplifier … it might be designed to use 8-ohm speakers, but its output impedance is a fraction of an ohm, not 8 ohms. Similarly, the electric company does not attempt to impedance-match your load. Here, the Thevenin impedance is very low and the load impedance (your toaster) is sized to extract the desired power.

Be careful what you surmise from a name.

Next month's article will explore some practical examples using some of the information covered thus far.

Don – AE6PM

ARRL News

From *The ARRL Letter*, June 2, 2011

JOIN THE USA ARDF TEAM IN ALBUQUERQUE

The Annual USA Championships of Amateur Radio Direction Finding (ARDF) will take place in forests near Albuquerque, New Mexico from September 14-18, 2011. USA's national championships are being combined with the IARU Region 2 Championships. According to ARRL ARDF Coordinator Joe Moell, K0OV, they are open to anyone of any age who can safely navigate in the woods with handheld radio gear for several kilometers. Medals will be awarded for the top three finishers on each band in 10 age categories, six for males and four for females. A two day training camp will precede the formal competitions.

Organizers of the 2011 championships are members of the Albuquerque Amateur Radio Club and the New Mexico Orienteers, led by Jerry Boyd, WB8WFK, and Mike Pendley, K5ATM. Registration is now open -- Moell said that it is important for competitors to register early. The organizers need an accurate head count and assurances that there will be sufficient attendees. Read more at www.arrl.org/news/ardf-update-foxhunters-prepare-for-national-and-iaru-championships-in-albuquerque.

ON THE AIR: ARRL VHF/UHF ADVISORY COMMITTEE SEEKS INPUT

The ARRL would like to encourage more participation in its several VHF/UHF contests held each year. Many of the HF transceivers sold in recent years include 50 MHz, and some also include the 144 and 432 MHz bands with multi-mode capabilities. The question at hand is how can we encourage more owners of such radios to utilize these bands and modes to participate in VHF/UHF contests?

The ARRL VHF/UHF Advisory Committee (VUAC) has been asked to consider this question, and to make recommendations to encourage, explore and expand the ARRL VHF and UHF contests and other operating activities by using the multi-band and multi-mode capabilities of modern transceivers and related equipment.

The VUAC would like to ask the Amateur Radio community to provide their comments and ideas for consideration.

Please send any comments or ideas you have on this matter to your ARRL VUAC Division representative no later than July 1, 2011. A listing of each Division's VUAC representative can be found at www.arrl.org/arrl-staff-vuac-cac.

NEW SECTION MANAGER APPOINTED IN SANTA CLARA VALLEY

Phil Steffora, K6TT, of Los Altos, California, was appointed as Santa Clara Valley Section Manager on May 25. ARRL Membership and Volunteer Programs Manager Dave Patton, NN1N, made the appointment in consultation with Pacific Division Director Bob Vallio, W6RGG. Steffora's appointment extends through June 30, 2012. First licensed in 1998 as KF6PEQ, Steffora upgraded to General in 2006 and then Amateur Extra in 2008. He has served as a Santa Clara Valley Assistant Section Manager since January 2009, and was Vice President of the Northern California DX Club (NCDXC <http://www.ncdxc.org/>) from 2009-2011. Steffora holds Worked All States, DXCC and other DX and contest achievements. The Section's top ARRL Field Organization position has been open since Bill Dale's, N2RHV, term of office concluded on June 30, 2010. Dale served as Section Manager of Santa Clara Valley for two terms.

From *The ARRL Letter*, June 9, 2011

US PROPOSES WRC-12 ALLOCATIONS FOR HF RADARS

The ARRL and its partners in the IARU have been involved in the preparations for several items on the 2012 World Radiocommunication Conference (WRC-12) agenda. Agenda item 1.15 is "to consider possible allocations in the range 3-50 MHz to

the radiolocation service for oceanographic radar applications." Such radars have been in operation in coastal areas for many years, typically under experimental licenses.

Based on protection requirements for the Amateur Service that the IARU had arranged to be included in ITU documentation, the Conference Preparatory Meeting (CPM) Report for WRC-12 that was adopted in February concluded that sharing between oceanographic radars and the Amateur Service "seems to be difficult." Sharing studies, therefore, focused on in-band compatibility in the bands used only by the fixed and/or land mobile services. The CPM Report offers three methods of satisfying the agenda item through various combinations of primary and secondary allocations, with the objective of satisfying the operational need for safety systems (e.g. for the detection of tsunamis) and providing for the operation of other systems while protecting other allocated services from harmful interference. Read more at www.arrl.org/news/us-proposes-wrc-12-allocations-for-hf-radars.

ARRL VHF/UHF ADVISORY COMMITTEE SEEKS INPUT

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Meeting Minutes

General Meeting, June 13, 2011

Kaiser Hospital 710 Lawrence Expy., Santa Clara, CA. 95051

Don Steinbach, AE6PM, called the meeting to order at 19:35. There were 25 members and guests present.

Announcements:
Field Day June25-26.
SVECS breakfast July 23.
AMSAT October 4-7.
Pacificon October 14-16.

Business Items:
Lou Steirer, WA6QYS, recapped the DeAnza Flea Market financial results:
110 vendors @ $20 = $2200
8 vendors @ $30 = $240
Surplus club equipment sold = $60
Coax fittings/adapters purchased for 440 repeater = ($18)
Profit from food sales = $359.15
Total income = $2841.15
Fee paid to ASVARO = $1625
Net to club treasury = $1216.15

Program:
The remainder of the meeting was devoted to Field Day planning by Fred Townsend, AE6QL. Fred recommended that everyone bring their own earphones and flashlight, and their own digital equipment if applicable. Meet at Carl's Junior at Branham and Almaden and depart from there at 12:00 noon.

Meeting adjourned at 20:30

Don Steinbach, AE6PM – Acting Secretary

Board Meeting, June 20, 2011

Red Cross Building, 2731 N 1st St, San Jose CA
Status: Unreviewed

The SCCARA Board Meeting was called to order by Don AE6PM at 19:42.

Attendance:
President: Don Steinbach AE6PM
Vice President: Fred Townsend AE6QL
Treasurer: John Altieri W6HW
Trustee: Don Village K6PBQ
Directors: Lou Steirer WA6QYS, Wally Britten, KA6YMD, Gary Mitchell WB6YRU, Gregg Lane KF6FNA

Absent: Secretary Viki Moldenhauer KI6WDS, Director John Glass NU6P.
Visitors: Gwen Steirer KF6OTD, Herman DeKruyff KI6ETZ

Announcements:
Don AE6PM announced that the SCCARA-GRAM inputs are due to Gary no later than June 27.

Treasurer's Report:
Total checking, savings and cash is $5,859.39. There are 56 paid-up members. Proceeds from membership dues is $995.00. Grizzly Farwel, KI6WMR is reportedly a Silent Key.

Secretary's Report: None. The May Board meeting minutes were reviewed and there were no corrections.

Vice President: Possible future programs are AMSAT, speech compression, PSK31/Smart Phone and Homebrew Night.

Business Items:
- The telephone line for the two-meter repeater has been fixed.
- The two-meter antenna replacement is in progress. The City is investigating a temporary location.
- Repeater MOU. Gary has updated the old version and will send it to the Board for review.
- The antenna trailer tail light has been fixed, and the coax cables repaired. The rotor cable final installation will occur Thursday.
- Fred AE6QL purchased a new 2-meter preamplifier to replace the one that isn't working. Lou WA6QYS moved to reimburse Fred $34.95. Gary WB6YRU seconded. Passed unanimously.

- Lou WA6QYS reported that we cleared $1216.15 from the Flea Market. There were 118 vendors.
- Don K6PBQ suggested August 20 for the annual picnic. The Board concurred.
- Gary WB6YRU reported that the BBS 6-meter antenna is in work. Also that he has the handles for the 440 repeater cabinet.

The meeting was adjourned at 20:28

Don Steinbach, Acting Secretary.

Packet Pieces

Downloaded from the BBS packet network:

==========
Date: 18 Mar 2010 01:18
From: W1GMF@W1GMF
To: HUMOR@USA
Subject: Case Closed

Several women appeared in court, each accusing the others of causing the trouble they were having in the apartment building where they lived.

The women were arguing noisily even in the court.

The judge, banging his gavel to quiet them said, "We are going to do this in an orderly manner. I can't listen to all of you at once. I'll hear the oldest first."

The case was dismissed for lack of testimony.

==========
Date: 24 Mar 2010 01:18
From: W1GMF@W1GMF
To: HUMOR@USA
Subject: Cats and the Internet

"Top 10 Signs Your Cat Has Learned Your Internet Password"

10. E-Mail flames from some guy named "Fluffy."
9. Traces of kitty litter in your keyboard.
8. You find you've been subscribed to strange newsgroups like (alt.recreational.catnip).
7. Your web browser has a new home page: www.feline.com.
6. Your mouse has teeth marks in it ... and a strange aroma of tuna.
5. Hate-mail messages to Apple Computer Corp. about their release of "CyberDog."
4. Your new ergonomic keyboard has a strange territorial scent to it.
3. You keep finding new software around your house like CatinTax and WarCat II.
2. On IRC you're known as the IronMouser.
1. Little kitty carpal-tunnel braces near the scratching post.

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
Legal/FCC rules: WB6YRU
SCCARA (club inner workings): K6PBQ, WB6YRU, WA6QYS
EchoLink: KK6MX

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
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Newsletter Notes

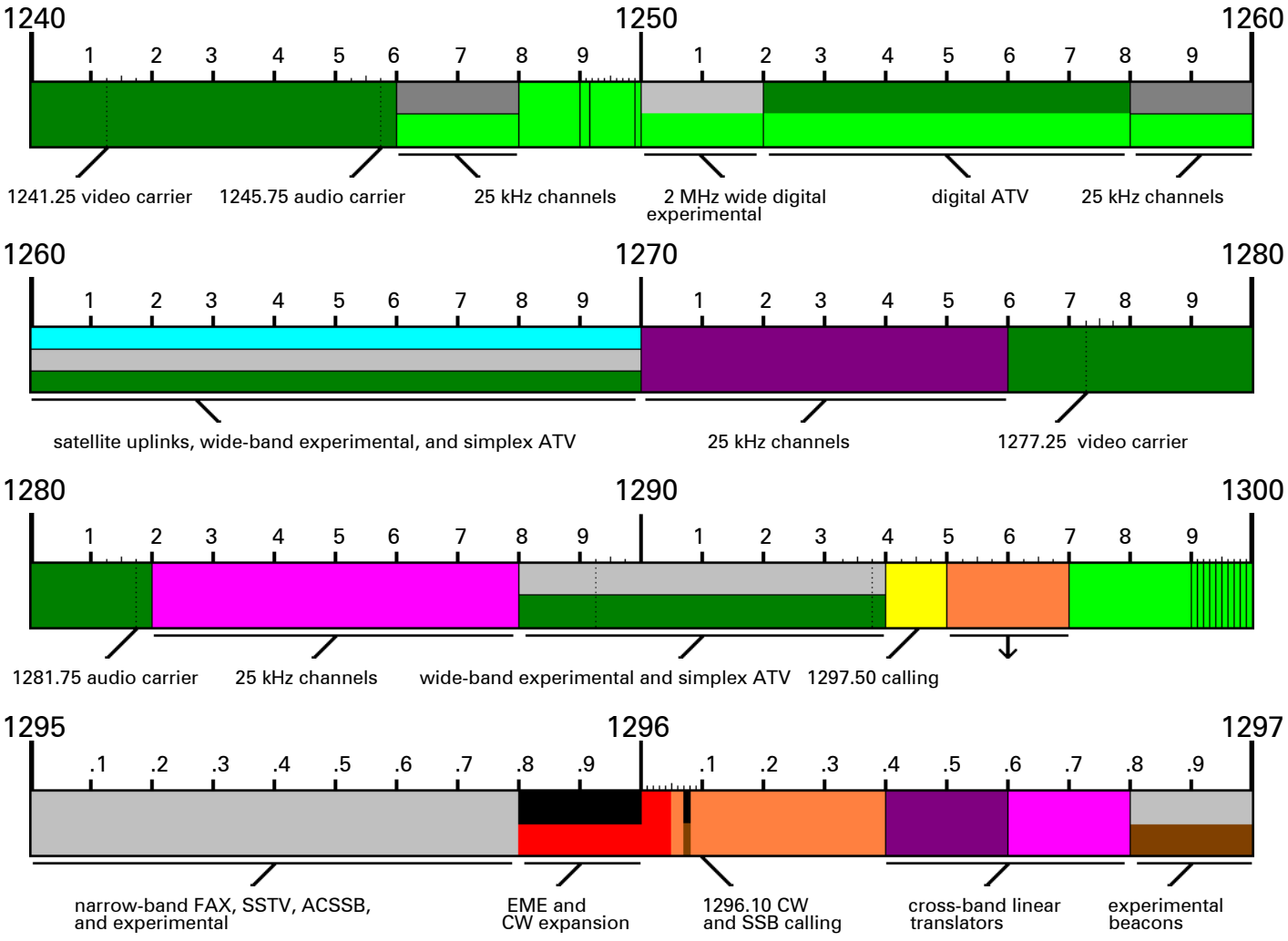
I've always felt that since Amateur Radio is a technical hobby, there should be technical articles in the *SCCARA-GRAM*, but they've been too few and far between for my tastes.

This month we have *TWO* of them! Thanks to Don AE6PM and Fred AE6QL.

As things worked out, there's an extra page to fill in this issue. So we're getting two band plan charts this time, 23 cm and 13 cm bands (Remember, the NCPA has adopted the ARRL band plans for all but the 2 m and 70 cm bands. So, these are really the ARRL band plans.)

73, Gary WB6YRU, editor

23 cm Band Plan for Northern California
1240 - 1300 MHz



All Mode and Experimental	FM Simplex
Amateur fast-scan TV (ATV)	Links and Control
Beacon	Repeater Input
CW	Repeater Output
Digital	Satellite
Earth-Moon-Earth (EME)	Weak Signal

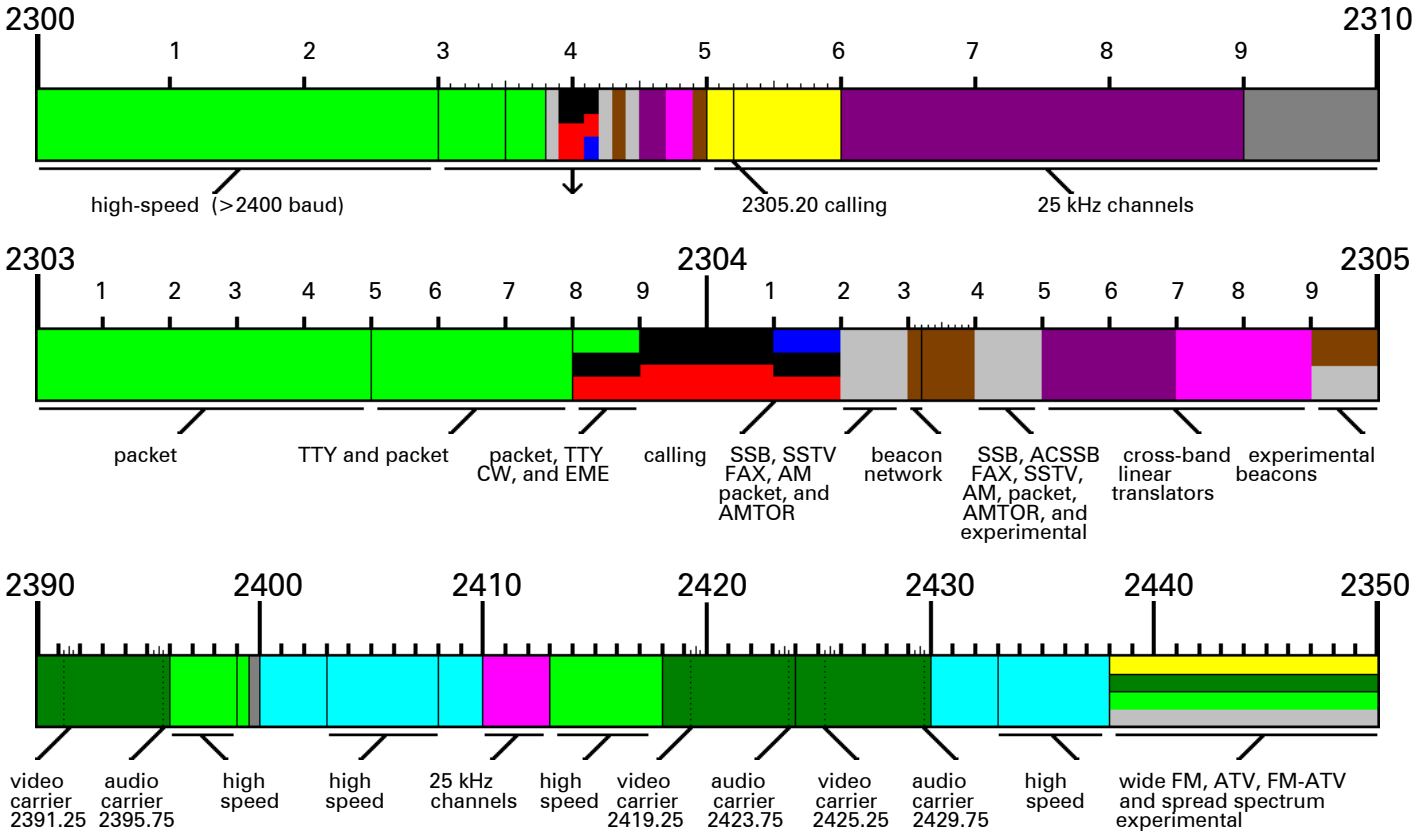
25 kHz spacing for narrow band channels as noted

For general Amateur Radio, see ARRL (www.arrl.org)
For repeaters, see NARCC (www.narcc.org)
For satellites, see AMSAT (www.amsat.org)

NCPA Northern California Packet Association
The digital organization of Northern California. www.n0ary.org/ncpa

December 15, 2010

13 cm Band Plan for Northern California
2300 - 2310 MHz
2390 - 2450 MHz



- All Mode and Experimental
- Amateur fast-scan TV (ATV)
- Beacon
- CW
- Digital
- Earth-Moon-Earth (EME)
- FM Simplex
- Links and Control
- Repeater Input
- Repeater Output
- Satellite

25 kHz spacing for narrow band channels
High Speed data rate is more than 2400 baud

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December 15, 2010

SCCARA
Santa **C**lara **C**ounty **A**mateur **R**adio **A**ssociation
PO Box 6
SAN JOSE CA 95103-0006

Affiliate of the ARRL,
American Radio Relay League

FIRST CLASS

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SCCARA Membership Form for 2011

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

Name: _____ Call: _____ Class: E A G 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.

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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