

W6OTX**W6ARA****PAARA NEWSLETTER**

VOLUME 59, NUMBER 3, March 2009

K6OTA**K6YQT****The New**

PAARAgraphs

Celebrating 72 years as an *active* ham radio club—*Since 1937*

The Official Newsletter of the

Palo Alto Amateur Radio Association, Inc.

CALENDAR



- | | |
|-----|--|
| Feb | 25, PAARA Board Meeting,
7:00pm - Red Cross, 400 Mitchell Ln.. |
| Mar | 6, PAARA Meeting, 7:00pm
Menlo Park Recreation Center
700 Alma Street, Menlo Park |
| Mar | 25, PAARA Board Meeting, 7:00pm |
| Apr | 3, PAARA Meeting, 7:00pm |

President's Corner Reflector Joel Wilhite – KD6W

March 2009

As the dry California soil soaks up the much needed water from our recent rain, our antenna ground planes shift in conductivity. But when that same liquid seeps into our connectors and collects in our electronics, we are obliged to participate in a maintenance cycle or two to remove the moisture and improve the seal to stop the water for going places we would rather it not invade. Reminds me of the old adage; we live in a narrow band of opportunity. Too much water and we drown, not enough and we can't survive.



KD6W

The same adage is true with the frequency allocations of the 2m band in northern California. As it stands, the 145mHz sub band of the two meter band is set to 20kc spacing and yields 20 pairs from 145.11 to 145.49. The 146 and 147 sub part of the 2m band are already set at 15kc spacing. The wide spacing in the 145 sub band has created a rift in the NARCC membership.

An incumbent machine trustee in the 145 band made the statement that NARCC is being "stampeded" in the recent proposal to re-farm the sub band to 12.5kc steps. The comment goes on to implicate D Star coordination exclusively as the problem. It's true that D Star machines have been testing in unusual places to operate and have failed to maintain compliance to part 97 rules when they were squeezed into the digital band in between packet operators. But NARCC is also stuck with no other pairs to offer FM (analog) machines waiting for coordination as well. Attempts have been made to moderate the situation on the band to make more room, the question remains of how best to do this.

At the January NARCC meeting in Sacramento, two plans were produced. The first plan proposed to re-farm the 145 sub band with a chunk of the band coordinated with 10kc steps and the rest with 15kc steps. This plan would have created a splinter section of the 2 meter band to make about 10 new pairs and the rest moved to 15kc spacing. The 10kc spaced pairs would have

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KG6LWE SAYS...

PLEASE JOIN US AT OUR
NEXT GENERAL MEETING ON**MARCH 6, 2009**

OUR SPEAKER WILL BE...

Cameron Rolfe, KA6ONV

What makes Helicopters fly and how are they different from airplanes.

(Like not having wings isn't already obvious enough.-kd6w)

Cameron has a background in broadcast engineering and has flown traffic reporters for several local radio and television stations in the Bay Area for many years. He is the owner of *Bay Area Helicoptours* at the San Carlos Airport.

When not touring the Bay Area, Cameron gives helicopter instructions. Cameron was instrumental in setting up the CARLA 440 linked Repeater system in the late 80's across Northern California.

VE Exams, 3rd Saturday each month, 10:30AM, 145.23— PL=100Hz

Redwood City Main Library, Community Conference Room
 1044 Middlefield Road, Redwood City, CA
 contact: <http://amateur-radio.org/> or Al, WB6IMX@att.net

ELECTRONICS FLEA MARKET

Sponsorship by A.S.V.A.R.O.
 (Association of Silicon Valley Amateur Radio Organizations)
 Second Saturday of month, March-October, 6am-2pm
 Howard M. Krawetz, N6HM 650-856-9761
 Contact: <http://www.electronicshelfmarket.com/>

LIVERMORE SWAP MEET. Now in Robertson Park, Livermore, every first Sunday of the month. 7 am to 11:30 am. Free admission for buyers. For further info, see: www.larkswap.com or contact Ian Parker, W6TCP at swapmeet@livermoreark.org

PAARA Palo Alto Amateur Radio Association

Meets 1st Friday 7:00pm each month at Menlo Park Rec. Center, Net 145.230 each Monday 8:30. See our website at <http://www.paara.org/> for more information.
 Or contact: Joel Wilhite KD6W, KD6W@ARRL.NET, 650-325-8239

FARS Foothills Amateur Radio Society

Meets 4th Friday each month at 7:30pm
 contact: <http://www.fars.k6va.org/>

NCDXC Northern California DX Club

meets 2nd Friday 7:30pm each month,
 repeater for member info 147.360, Thur 8:00PM
 contact: <http://nedxc.org/> or Mike Gavin W6WZ, (650) 851 8699

QCWA Chapter 11

Northern California Quarter Century Wireless Association
 Meets third Wednesday monthly at Harry's Hofbrau in Redwood City @ 11:30 AM.
 Guests are welcome. Saturday morning net on 146.850 MHz, PL 114.8

NorCalQRP Northern California QRP Club

meets 1st Sunday each month
 contact: <http://www.norcalqrp.org/>

SPECS Southern Peninsula Emergency Communication System

meets each Monday 8:00pm on Net 145.27, 440.80 MHz
 contact: <http://specsnet.org/> or Tom Cascone, KF6LWZ, 650-688-0441

SCARES South County Amateur Radio Emergency Service

meets 3rd Thursday 7:30pm each month, San Carlos City Hall.
 Net is on 146.445 [PL 114.8] & 444.50 (PL-100) 7:30 Monday evenings.
 contact: President Gary D. Aden, K6GDA 650-743-1265(D), 650- 595-5590 (N)
 Web: <http://k6mpn.org> E-mail: pres@k6mpn.org

SCCARA Santa Clara County Amateur Radio Association

Operates W6UU & W6UU/R, repeater 146.985-pl
 Nets: 2m, 7:30pm Mon; 70cm, 442.425+ (pl 107.2) Thur.
 meets 2nd Mon each month @ 7:30 PM.
 contact: <http://www.qsl.net/secara/> or Clark Murphy KE6KXO 408-262-9334
 ARRL/VEC license testing contact 408-507-4698

SVECS Silicon Valley Emergency Communications

Operates AA6BT repeater (146.115 MHz+)
 contact: <http://www.svecs.net/> or Lou Stierer WA6QYS 408 241 7999

TEARS The Elmer Amateur Radio Society

Dedicated to operational training, knowledge building &
 FCC exam testing. KV6R repeater under construction.
 Contact AA6T@ARRL.NET. Most members are Extra
 class or VE's. See QRZ dot com/kv6r for class info

WVARA West Valley Amateur Radio Association

W6PIY six-meter repeater on 52.58MHz. Normally, six-meters is linked with 147 and 223, while 441 and 1286 repeaters are linked.
 VHF: 52.58 (-500) 151.4 ctcss UHF: 147.39 (+600) 151.4 ctcss 441.35 (+5.0 88.5) ctcss
 223.96 (+1.6) 156.7 ctcss 1286.20 (-12m) 100.0 ctcss

Meetings are 3rd Wednesday of every month.
 contact: <http://wvara.org/>, Bill Ashby N6FFC, 408-267-3118, N6FFC@Juno.com, or N6FFC@ARRL.NET

American Red Cross, **SANTA CLARA VALLEY CHAPTER**
 contact: <http://santaclaravalley.redcross.org/> or Scott Hensley KB6UOO, (408) 967 7924
fshenslev@Novell.com

(please send changes to PAARAgaphs editor: kd6w@arrl.net)

Please contact Rick Melrose for settling your 2009 membership dues so you can keep receiving your PAARAgaphs

Palo Alto Amateur Radio Association, Inc.

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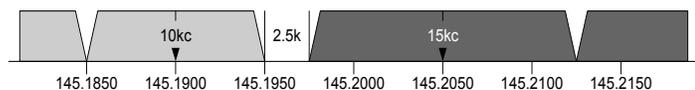
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precluded ANY analog machines to operate in this new area forcing the creation of a D Star exclusive sub band. This proposal lasted about 4 minutes in committee. Another plan was offering 15kc steps only across the band but it too didn't offer enough and wouldn't create enough pairs for the current number of machines waiting for coordination (analog alone). The meeting finally moved towards re-farming the entire 145 sub band to 12.5kc spacing yielding 12 more pairs. This plan had some resistance at the meeting but it offered the biggest yield of new pairs along with a huge paradigm shift in the amateur community as well.

Since then the fur started flying on the email reflectors about a week or so after this announcement came out in the form of the minutes on the NARCC web site. Since then a wide range of reasons why 12.5kc spacing will never work have been produced in rebuttal. In either case where the current spacing or the proposed spacing plan precluded one group or the other, in both cases no other alternatives were offered. The January meeting had more than one proposal but it was the consensus of that group that having more than one option to decide from a list of choices was problematic and could easily stall any effort to make progress. I believe the choice they made may have been too radical.

The ground is rumbling from the battle formations being set up from what might seem to be the defeat of any progress. On one side the "No change camp", and the other side the "Change camp" are drawing lines in the dirt. To work with both groups will require a high level diplomacy along with a couple of back up proposals in compromise. In our case we fall into the "change camp" as PAARA can not be given a coordination without a working system on a legal pair and so work has stalled until I have a plan that offers several choices to select from to give the best fit given certain priorities each side might seek.

At the last PAARA general meeting I made an attempt to summarize the issue but I lost a few people in the audience and they let me know. I wish to thank them for inspiring me to help clarify the situation here. To help explain what I was trying to convey, I have made a few graphical representations of the re-farming proposals made in the 2 meter band spacing. The first plan offered 10 new pairs in a new 10/15kc step size which would allow incumbent machines to be managed but offered no room for any new analog machines. By making all of the other new steps 10kc apart would restrict those frequencies to be exclusively used for D Star only modulated equipment.



This diagram illustrates the goal of the first plan that offered 10kc and 15kc spacing and a guard band. Unfortunately, the 10kc step size in the splinter band was a deal killer. The next plan was a complete re-farming of the 145 sub band from 20kc steps to 15kc step sizes which yielded 6 more pairs at most. The number of machine applications backed up at NARCC would exhaust those few new pairs and still be backed up.

The meeting picked up a new tone at this point. Most radios manufactured from about 1990 on have the ability to select the 12.5kc step size as indicated in the radio menu. However, these same radios *may* have problems operating in such a narrow environment for two reasons. One, the radio frequency stability required is now more critical than ever. If for example, a radio drifts off frequency or is off frequency slightly, say 2kc or more, the machine on the next frequency up (or down depending on the actual frequency) will get splattered by the user radio. Most of us are familiar with how a radio sounds when it's off 5kc. The difference between a 2.5kc and a 5kc offset is not as noticeable to us, but a different story to a repeater.

Any errors in carrier centers from users will affect a machine's ability to discriminate between somebody on frequency and another that isn't. Also, if the deviation of the user radio is not properly calibrated to operate in narrow mode, the user radio will splatter to either side of a channel (as some people do today). A nearby machine (or both machines on either side of a channel) will be affected from a user running their equipment too wide. However, the opposite is not true. Running a radio in narrow mode doesn't diminish the radios effectiveness when operating into a wide machine with the exception of the audio level won't be as high. Having a calibrated service monitor available to hams will become more critical as users will want to know if their equipment is in proper alignment. When was the last time you calibrated your equipment?

Operating a machine in a 12.5k spacing means several things but two things must happen. No matter what frequency plan they operate on now, the frequency pair will likely change for most machines as the 12.5kc spacing provides only 6 natural pairs from the 20kc spacing plan, so odds are the frequency will change. This means new crystals and retuned band pass filters. Second and the most obvious, the band pass I.F. must be upgraded to operate in a narrow mode. Most I.F. band pass circuits are already optimized for 15kc spacing and so very little is changed when implementing a 15kc step size, maybe some tweaking at most. To operate in 12.5kc spacing the IF design in a repeater will likely need to be replaced.

Modern repeaters don't require modification as the most recent commercial designs already support narrow mode FM as the land mobile industry moved to 12.5 spacing years ago. Recent amateur radios and repeaters are barely compliant and tolerate some amount of adjacent channel interference. Sadly, the ham radio community has embraced wide band or multi band radios that

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PAARA Exemplary Service Award

Gerry Tucker, N6NV 2005

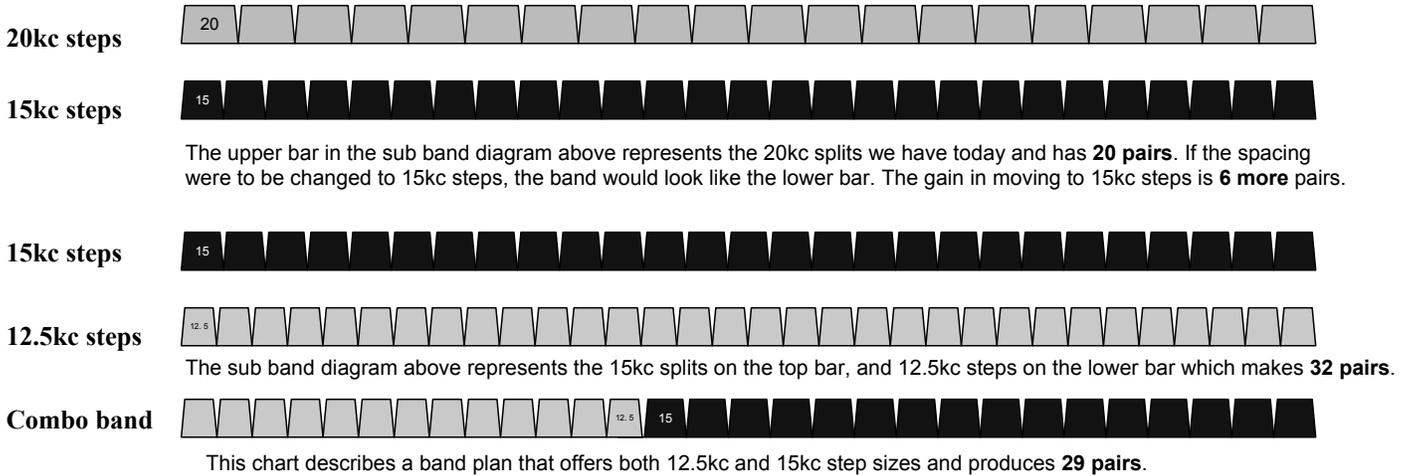
Rice Family 2006

Jim K6AK, Lisa KG6KQS, Kyle KG6MSK

Wally Porter, K6URO 2007

Vic Black, AB6SO 2008

??? - 2009



New PAARA FD Coordinator!

Some of you may have noticed that the February PAARAgaphs masthead no longer shows me as Field Coordinator, but instead lists the most capable, Doug Teter, KG6LWE. I decided some time ago that, since I will be a young 70 before the 2009 field day, it is time to cut back on some of my tower climbing habits, as well as some of the more physical aspects of field day. Doug is going to do a great job and we have a couple of good tower capable members that seem to enjoy the field day effort. I expect to keep being a part of putting up towers with my blue truck and probably towing the trailer when necessary. I think eventually we will move to smaller towers that could be put up without the truck. I went to my first FD when we were up at the Sharon estate off of Sand Hill Rd, sometime around the early 70's. Fred Canham (SK), K6YT was the field day 'coordinator' back then and I gradually took over for him as he got older. There is a good picture, in the June '94 issue of PAARAgaphs, of Fred climbing a tower, probably at the previous FD. I think that photo and a nice write-up on Fred made it into the Palo Alto Times that year. Fred had pretty much retired by the time we moved to Bay Front Park, a site which was acquired for us by our now President, Joel, KD6W. I drove Fred up to the park for a couple of field days to show him we were carrying on the good example he had set for us, but it wasn't long before he was confined to a care home. After he passed away, my brother Rich helped me take down his 60' fixed tower with a gin pole, 10' at a time. I think it took us about a month to finish it. Please give Doug all the help he needs for next field day and heed his advice, I'm sure it will always be good and reliable. 73 de Gerry — N6NV

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have very poor adjacent channel characteristics. So even though your radio may support 12.5kc step size, that doesn't mean it will tolerate nearby energy from a nearby machine or user.

Since some of the current amateur radios and repeaters could operate within the 12.5kc spacing, a proposal for offering both 12.5 and 15kc spacing might have a chance to offer relief. This is where I decided to look for a compromise to develop a set of various proposals to offer.

The goal is to find where the sweet spot is. I found that at several places on the band, a jump can be made from one spacing interval to another with out wasting a channel but also assumes the 15kc steps use odd steps instead of even 15kc steps. The 12.5k spacing also allows 2 D Star machines to be doubled up inside one 12.5kc allocation and again assuming they are next to another D Star and the shared pair are upside down from each other. This option could potentially generate 12 (one has to be sacrificed being next to an analog allocation in the 15kc step side) more allocations for digital machines for a total of 13 + 12 + 16 or 41 coordinated machines. From 20 to a potential 41 possible is a huge jump.

There are a plethora of other possible combinations and options I found by just playing with a spread sheet over one rainy weekend. I plan to write a paper on my numerical observations and present this information to NARCC.

73 de Joel Wilhite — KD6W



Greetings from your New PAARA Field Day Chairman

Most of you know that my absolute favorite weekend of the entire year is Field Day. I've been hooked ever since my first visit to PAARA's Field Day site, a couple of weeks after getting my tech license in 2002. I jumped in with both feet the following year, following Mr. Field Day, Gerry Tucker, N6NV, around, doing whatever needed doing. I helped assemble antennas, pounded stakes, held guy lines, watched in amazement as Gerry pushed towers up with this crazy pipe contraption on the back of his truck, and generally had the time of my life.

February 2009 Board Meeting Minutes

Meeting was held at the PARC, on Feb 4 2009. Joel Wilhite KD6W (Pres.) was not in attendance due to family obligations, Doug Teter KG6LWE (VP) presided over the meeting. Attending were: Rick Melrose K6RDM (Sec., Database), Ron Chester W6AZ (Treas.), Gerry Tucker N6NV (Dir.), Byron Beck KG6UOB (Dir.), Rob Riley KI6INR (Dir.), Peter Sheerin K6WEB (Dir., Web.), Vic Black AB6SO (Memb.), Dan Curry K6DLC, and Thomas McLaughlin KG6ZOO. A quorum was present. The minutes are recorded by Rick Melrose K6RDM PAARA Secretary.

- The minutes from the January Board meeting were read and approved as amended.
 - President's Report: Doug KG6LWE, summarized information from Joel regarding the Repeater Committee and indicated that a meeting would be scheduled for this month.
 - Joel and Rolf Klibo N6NFI attended the recent NARCC meeting in Sacramento and informed the board that a proposed change in spacing in some VHF band segments could affect all 2 m repeaters
 - Plans were announced to schedule a meeting of the Field Day Committee to begin planning.
 - The matter of the trailer(s), storage, disposition and the possible acquisition of replacement(s) was discussed and prospects are being looked into.
 - Treasurer's Report: Ron W6AZ reported on finances regarding membership renewals, raffle proceeds and the Winter Banquet, including financial planning for the upcoming Field Day.
 - VP Report: Doug KG6LWE, discussed possible agenda for the impending general meeting and the speaker topic. Other suggestions were offered for speakers and topics for future meetings.
 - Doug arranged with Round Table for the club to have their meeting room reserved for the club's after-meeting rendezvous.
 - Website Report: Peter K6WEB, reported on changes in progress and assured the Board that the hosting change and broken links would be handled this coming weekend (7th & 8th of February).
 - Peter committed to having the membership cards ready for the March meeting. Rick K6RDM said he would provide Peter with files of renewed and past members for this purpose.
 - Newsletter Editorial Staff Report: Ron W6AZ, looking into using Google Docs as a repository for future articles for PAARAgaphs is not looking as promising as was hoped. For now, content can be emailed to him and the search for a useful online system moves forward. The report continued with discussion regarding the logistics of getting the newsletter composed, printed, stamped, labeled and posted. A schedule of who would be wearing which hats over the next few issues was worked out. Rick K6RDM, suggested it might be possible to close the gap and get the minutes of the Board Meeting into the next proximate Newsletter if the board members are amenable to reviewing and amending or approving the minutes by email in time for inclusion into the newsletter. A motion to make this change was made and approved.
 - New Business — Doug informed the Board that the aggregation of inventory equipment for sale at the flea market and elsewhere which has been stored at Joel's house has become a problem and we need to make progress thinning and eventually eliminating the accumulation. Some progress could be made on the coming Saturday (February 7th) and on upcoming weekends to be announced, wherein interested club members can examine what's there and help with the disposition. A similar process needs to be implemented to handle the accumulation in Doug's trailer. Doug thought a storage container would be a good solution if a place to store one could be found. Anybody?
 - With the agenda completed, the meeting was adjourned at 8:45 pm.
- (For Dec 08 and Jan 09 minutes, see our website.)



Technical Tips by Vic Black AB6SO

Through Wall Connectors

Getting feed lines through a wall can be a problem. Tower Electronics sells 6-inch long SO-239 double female barrel bulkhead connectors at <http://www.pl-259.com/page1.html>. Drill a hole through the wall, put the barrel through, with a gasket under the nuts for an instant feed through.

Prices: 2 inches long \$3.50 each, 4 inches long for \$6 each and 6 inches long for \$8 each. The full range of sizes includes 2, 3, 4, 6, 8, 10, 12 inches. Prices range from \$3.50 to \$14 each. Try a standard length double female barrel bulkhead connector to get through the firewall in cars for mobile antenna lead installations since most modern cars don't have holes in the firewall. If you operate QRP, you'll appreciate their 50 ohm, 10 Watt dummy load with light for only \$5.

paara.org Get's Upgraded

The PAARAsite (website) just recently received a badly needed major overhaul. Peter, K6WEB along with help from Andreas N6NU and Joel KD6W, were able to make some fundamental changes to the way browsers on the internet access our web site and what they will see when they get there. From most outward appearances, nothing has happened as the style sheet looks virtually the same. What has changed is how the site is being hosted which will provide both greater stability and better download speed for greater number of simultaneous users. Further more, we updated our database and blog software versions to keep up with the latest versions of those applications. As we find more tools for making our job easier, the web experience will become more pleasurable and easy to use. As always, if you have suggestions or see something on our site that needs repair, drop us a line and let us know. We are always looking for more input and your feedback.



Our webmaster,
 Peter—K6WEB

- K6WEB, KD6W

LIFE MEMBERSHIP

Awarded by Action of the PAARA Board

<i>Wally Porter K6URO</i>	<i>Dec 2008</i>
<i>Steve Stuntz, K6FS</i>	<i>Dec 2007</i>
<i>Ron Pantan, W6VG</i>	<i>SK</i>
<i>Joe Gomes, KB6HDC</i>	<i>SK</i>
<i>Leslie Vickery, KB6HDC</i>	<i>SK</i>

“New” Repeater Available de Rich, W6APZ

Most people know that SPECS operates the 145.270 MHz and 440.800 MHz (plus offset) repeaters both with 100 Hz PL (subaudible tone). For the longest time, SPECS also had a repeater on 224.140 (minus 1.6 MHz) also with a 100 Hz PL, but until recently this was permanently linked to the 440.800 repeater. This meant that whatever came in on the 440.800 repeater went out on both the 440 MHz and the 222 MHz bands. Similarly, whatever came in on the 222 MHz band went out on both bands.

In times of emergency, we will need all the channels possible to carry on the emergency communications. To facilitate additional channels, the SPECS repeater group has disconnected the 222 MHz repeater from the 440 MHz repeater. This means we now effectively have a *new repeater channel* to use on a daily basis.

Many of the new HTs have the capability of operating on the 222 band. These include Kenwood TH-F6A, Yaesu VX-6R, Yaesu VX-7R, and Yaesu VX-8R. If you have one of these or a mobile radio that operates on 224.140 MHz, please use that frequency to check into the UHF repeater check-ins on the Monday night SPECS net. When you check in, let Net Control know that you are using the 224.140 frequency so that they will know the repeater is being used. Early check-in usually starts about 7:50 PM, but you can also check in during the regular SPECS net when they call for UHF users to check in on one of the UHF frequencies. If you are considering a new HT, check out the VHF/UHF Handhelds Survey on page 18 of the February 2008 CQ Amateur Radio magazine.

In order to know where we can communicate to/from on the 222 MHz band, we need to start using it for our day-to-day conversations. That way when an emergency happens, we will know what areas this repeater covers. So, program 224.140, minus offset, 100 Hz PL into your radio now.

Congratulations to our February 6th 2009

PAARA Raffle Prize Winners

- 1st Prize: **Dave Ungar—W6DH (Carolyn Gavin—W6ABC)**
MFJ-4225MV Deluxe Adjustable Switching PS
- 2nd Prize: **Rich Stiebel—W6APZ (not shown)**
LDG Z-100 Antenna Tuner
- 3rd Prize: **Vic Black—AB6SO**
ARRL Handbook with Bonus CD
- 4th Prize: **James Wilson—KI6MQE**
PVC DBJ-1 J Pole Antenna / donated by Ed Fong
- 5th Prize: **Gary Barnes—KI6HIG**
Portable DBJ-2 J Pole Antenna / donated by Ed Fong
- 6th Prize: **Mike Gavin—W6WZ**
MFJ Ultralite 144-148 MHz Magnet Mount Antenna
- 7th Prize: **Joel Wilhite—KD6W**
Iron Horse Antenna Mount donated by John
- 8th Prize: **Larry Hedberg—KD6EUG**
Sterling Deluxe Wire Stripper
- 9th Prize: NARCC Northern California Repeater Directory 2009
- 10th Prize: **Marty Wayne—W6NEV**
ARRL Minilog

Pacificon 2009 On Ice

This is not say our favorite annual ham radio convention is being hosted by Brian Boitano. In a recent flurry of email leading up to press time, the word spread fast and in the blink of an eye, our annual tradition was doomed. Doug Hendricks of the NorCal QRP Club posted some of the details of the negotiation with the current location.

Dick Brown, who heads up the Pacificon committee for the Mount Diablo Amateur Radio Club quickly realized the situation was becoming untenable after the host hotel for Pacificon 2009 added a significant number of new requirements, most in the form of price increases by Marriott. Although the hotel had given them increases in the number of rooms needed, MDARC had to guarantee the forum room rentals, the amount of food for breakfast and the head count for both lunch and banquet. In the past, room rates along with a block of rooms were set aside for hosting Pacificon with no minimum service assurances required. In the past the hotel remained flexible and accommodated the Pacificon committee to meet their last minute needs.

Along with all of these new requirements, the big shock came when the hotel wanted to charge \$5 per vehicle parking per day! The price increases and new fees would have easily put MDARC in a position where they were almost assured of a loss putting on the convention. Doug asked Dick if they were thinking of going to another hotel and he said "No, there are no plans for MDARC to have Pacificon in 2009. We may revisit it in 2010." This doesn't sound too good, but don't fret yet!

In the final moments before going to press, we discovered the Pacificon 2009 web site has been updated and now will be held at **EMCOMMWEST 09** in Reno, Nevada on May 1st—3rd at Circus Circus. Room reservations are now open. For more information, visit www.emcommwest.org We can't be certain if this is only a temporary situation but at least for 2009, Pacificon is moving East and earlier!
-kd6w



PAARA Members and Visitors:
THANK YOU FOR YOUR SUPPORT of the exciting monthly raffles!



PAARA Board and Officers 2009 — Left to right, Gerry-N6NV, Kristen-K6WX, Rob-K161NR, Doug-KG6LWE, Joel-KD6W, Byron-KG6UOB, Ron-W6AZ, Peter-K6WEB, Rick-K6RDM— photo by mystery ham

Spidey's Web of Technology by K6WEB - The Power of Symbols

Last month, I introduced the basics of symbols used for equipment, and described a cross-section of those appropriate for amateur radio equipment. In part 2 this month, I'll focus on symbols relating to power. Since the power we hams use is inherently electric, most of the symbols relating to power have been developed by the International Electrotechnical Commission (IEC), as opposed to the International Standards Organization (ISO). Since both have collaborated on a common online database of "Graphical Symbols for Use on Equipment" (symbols from the ISO 7000 and IEC 60417 standards, found at <http://www.graphical-symbols.info> [subscription required]), some clear way of delineating which standard a symbol in the database belongs to was needed. The organizations chose to give each symbol a numeric identifier, with the range of 1-4999 allocated to ISO, and 5000-10000 allocated to IEC. The most important power symbols are of course the warning and danger symbols. IEC 60417-5036, "Dangerous

Voltage"  is arguably the most important of all, and also featured as a component of ISO 7010-W012 "Safety sign"

. A similarly shaped symbol, but which doesn't indicate

danger, is ISO 7000-2302: , used to indicate electrical power for accessories. This symbol, in my opinion, should be used on DC power outlets, such as the accessory power outlets on the back of HF radios, DC power distribution blocks such as LDG Electronics' (now discontinued) Multi-DC. Of course, you'd also need to indicate the polarity. If the accessory power jacks are coaxial and are of the only sane polarity—shield

ground and center hot—then IEC 60417-5926  should be used. Why is there only one sane polarity? Because putting the positive path on the outside of a plug, where it is not protected from touching ground, is clearly insane. Beware of buying products made by engineers that don't understand this simple concept! Even though the shape is different, you can see the same concept of the accessory power shape (thinner and ro-

tated) in ISO 7000-0353: Main electrical switch—, which should be used to indicate the main electrical cut-off of a building or piece of major equipment (read: that legal-limit linear in your shack). And as an example of how symbols can be used as components of other symbols to increase understanding, ISO

7000-2302 is used as a key part of ISO 7000-2567 to indicate

fuse box access: . An individual fuse (as in a radio's

power cord) would be indicated by IEC 60417-5016: .

That brings us to the labeling of power types. I'm sure you're all familiar with the two key symbols for this—IEC 60417-

5031  for direct current and IEC 60417-5032:  for alternating current. But since there are different types of AC

power, there are variations on this basic symbol. 5032-1: 

indicates three-phase alternating current, and 5032-2:  indicates Three-phase alternating current with a neutral conductor. All of these symbols have a very specific meaning—the equipment it is found on is suitable for use only with that type of power!

IEC 60417-5033:  indicates the equipment is suitable for use with both direct and alternating current.

IEC 60417-5957:  indicates that the equipment is designed primarily for indoor use.

IEC 60417-5275:  is a symbol I don't think is designed well at all. Who could infer that this identifies equipment providing protection against over-voltages (in other words, a lightning surge arrestor)?

To Be Continued Next Month



Ed Fong—WB6IQN describes the theory of a high performance balun design photo by K6VVO



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2 Elecraft K3's and 2 KX1's, an Icom 706 MKIIG, and a Yaesu FT-847 and a FT-897D
A Big Thanks to Bob, Howard, Dan, Mark, and everyone at HRO for their continued SUPPORT!**

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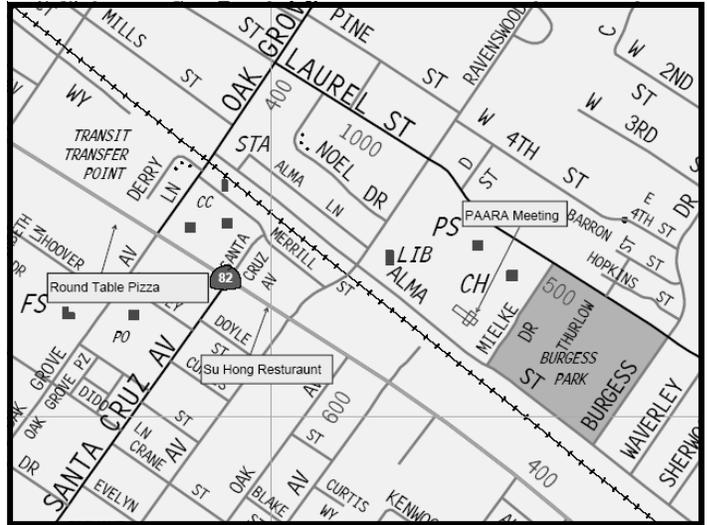


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PAARA Radio Net
Info and Swap Session
every Monday evening
8:30pm local time
on the N6NFI
145.230 MHz repeater
PL tone off

control operators:

Week	Operator
1 st Mon.	Paul Petlatch, KI6QXV
2 nd Mon.	Doug Teter, KG6LWE
3 rd Mon.	Peter Sheerin, K6WEB
4 th Mon.	Doña Kerns, KI6DAR
5 th Mon.	Mike Bray, N6MEB



Directions to PAARA meeting:
<http://paara.org/meetings/>

Palo Alto Amateur Radio Association
P.O. Box 911, Menlo Park, California 94026-0911
 Club meetings are on the first Friday of each month, 7:00pm at the Menlo Park Rec Center, 700 Alma Street, Menlo Park, CA.

Radio NET & Swap Session every Monday evening, at 8:30pm, on the 145.230 –600 MHz repeater, PL tone off.

Membership in PAARA is \$20.00 per calendar year, which includes one subscription to PAARAgaphs \$6 for each additional family member (no newsletter).
 Make payment to the Palo Alto Amateur Radio Association, P.O. Box 911, Menlo Park, CA 94026-0911

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Join us for pre-meeting eyeball

Eye Ball QSO
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gab & gobble



Food will be served at 6:00 sharp, so guests will be on time for the PAARA meeting. Those arriving late will be responsible for their own food order.

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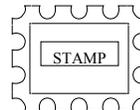
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PAARAgraphs Newsletter
P.O. Box 911
Menlo Park, California 94026

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Upcoming March Events

VE Exams — Cupertino—7th and 21st
(Apple Computer 1 Infinite Loop 8-10:30am)

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(www.arrl.org/contests/calendar.html)

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(weather permitting)

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