

# SCOPE

A newsletter by and for the  
Palomar Amateur Radio Club  
of San Diego, California.

See SCOPE in **color**  
on our website at  
[www.palomararc.org](http://www.palomararc.org)!

*Paul KB5MU sets up an HF vertical antenna  
at Burning Man 2009. See article on page 6.*

## Board of Directors Nominations

The floor will be open for nominations during the November General meeting to be held November 4, 2009. Any suggestions should be directed to the nominating committee as soon as possible.

At the meeting the committee will bring forth a slate to be considered by the membership for election at the December 2, 2009 meeting.

### 2010 Nominating Committee

Jim W6SST (760) 310-5271  
Jo KB6NMK (760) 741-2560  
Ron K2RP (760) 436-8109

Nominations can be made from the floor at the November meeting.

The nominating committee and others making nominations should ensure that each nominee is willing to serve if elected. Should the only candidate for a particular position die, become incapacitated or ineligible to serve, or withdraw his or her name from consideration, other candidates for

that position may be nominated at the December regular meeting. The election shall be held at the December regular meeting, with the new officers and directors assuming their duties at the end of the December regular meeting.

If there is only one nominee for an officer, that nominee may be declared elected without the formality of a vote. If there is more than one nominee for a position, voting shall be by secret written ballot.



The list of positions on the board of directors includes President, Vice President, Secretary, Treasurer, and two Directors. The other three positions on the board are chosen by the president from the four committee chairs of the standing committees. These four positions are Repeater Technical Chair, Repeater Site Chair, Membership Chair, and SCOPE Editor.

## Save the Date

### Club Meeting

**4 November 2009**

Club Officer Nominations  
Program by Loren AD6ZJ  
on Foursquare Antennas

### Board Meeting

**11 November 2009**

Palomar Amateur Radio  
Club board meeting at  
7:00pm at W6GNI QTH

### Sweepstakes!

**November 2009**

7 - 8 ARRL November  
Sweepstakes (CW)  
21 - 22 ARRL November  
Sweepstakes (Phone)

# Classified Ads are Free for Members!

## For Sale

One TS 520, excellent condition \$195.00 with free MC 50 microphone.

MFJ-949e 300 Watt Tuner. Like new (used twice).

New \$179.95...sale price \$125.00.

Two 75/40 Meter SWAN traps for \$20.00. And one book free with each purchase, "Fundamentals of Radio" by Gordon Hathaway 6th printing 1953 and Radio Handbook, Sixteenth Edition by William Orr, W6SAI, 1962.

Sonny Stires <sstires@cox.net>

## For Sale

Astron RS35A 35 amp power supply \$80

Kenwood TM-221A 2M Transceiver \$90

Mirage 220 amp. 2 W in 20 W out (New from Mirage \$170) \$70

Lunar 40W 2 meter amp \$40

Kenwood TS-621A Dual band (2M/220) transceiver, nice, with manual, mike power cord \$275

Yaesu FL2100B Linear 80-10 M \$325

All working and looking good!

Ron K2RP (760) 436-8109 K2RP@ARRL.NET

Below, Ron K2RP checks out the wares at PARC's annual auction. Photo by KB5MU.



## HAM RADIO OUTLET

Tom KM6K  
Jose XE2SJB  
Jerry N5MCJ

H  
R  
O

**KENWOOD**  
*of CONCEPTS*  
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**US TOWERS**  
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*too*  
*Numerous to*  
*Mention!*

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CORRECTION: It was erroneously reported in the caption of the above photo in the October 2009 issue of the SCOPE that "Dennis Bacca, KD6TUI receives a certificate of appreciation from Steve Venner, W6TAN for his generous help at the FARC auction in April."

The correct caption should read "Dennis Bacca, KD6TUI receives a certificate of appreciation from Steve Venner, W6TAN for his generous help at the EARS auction in April." Scope editorial staff apologize for the incorrect caption previously printed.

## IMPULSE Electronics

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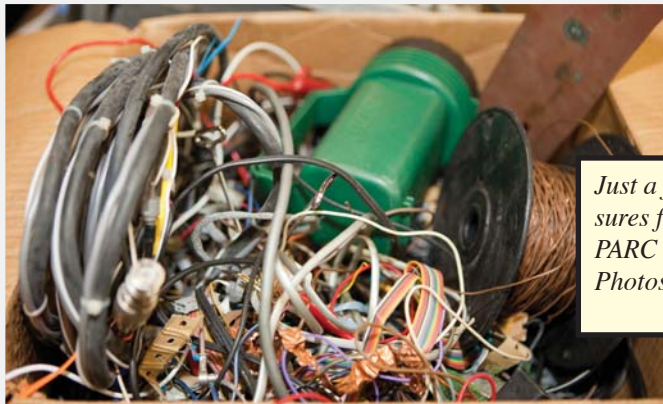
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# October Auction Report



Just a few of the treasures for sale at the PARC annual auction. Photos by KB5MU.



The annual club auction was held at the October meeting, and was very successful. Art, KC6UQH, served as auctioneer and entertainer for the evening, describing each item and taking bids from eager bidders. Helpers moving the merchandise around included Conrad, KG6JEI; Terry, K3PXX; and Tom, KG6RCW. Georgia, KI6LAV; Bob, KG6RGI; and Dennis, KD6TUIJ handled the computerized paperwork, enabling each buyer to "check out" quickly at the end of the auction.

# Club Reports

## Membership Report

New Members Joining PARC:  
KG6YFS, KI6ZUM, AF6SH, KJ6CKB,  
N6WST and Richard Johnston (no  
call yet). Also, six members rein-  
stated their expired memberships.  
And two members renewed for 5 years (\$100 each). That's the  
good news. The not so good news: I had to tell the Board that  
our membership is now down to 300 members.

I'm pleased that several members listed as "expired" in the Oc-  
tober SCOPE, that receive their SCOPE by the web have re-  
newed - great. Now the list is somewhat shorter. The following  
have not renewed, and hopefully they will see their calls here,  
and get a check in the mail! KI6SAT, KD6FKN, KG6UTS, and  
N6KTC. Pretty Please!  
The club does need your support.

Al  
W6GNI

## Fold and Staple

KB6NMK Jo  
W6GNI Al & Kathy  
WA5ACE Sonny  
KB6YHZ Art

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## Repeater Down?

## Hanging?

Let us know!

Send an email to:

[board@palomararc.org](mailto:board@palomararc.org)  
with your observation,  
the date, and time (ap-  
proximation OK). Many  
ears make light work.

## Upcoming General Meeting Topics

November - Loren Hunt AD6ZJ will discuss the  
4-Square antenna systems  
December - Elections and Christmas social  
January 2010 Monica Zech  
Month TBD - Lin Robertson KJ6EF - Vintage  
broadcast radios  
Month TBD - KC6YSO - AM and other boat anchors  
Month TBD - AK6QJ - Subject TBD  
Month TBD - ED Zeranski KG6UTS - Military radios

## Board Members Attending September Meeting

President Dennis Baca KD6TUJ  
Secretary Loren Hunt AD6ZJ  
Director #2 Conrad Lara KG6JEI  
Membership Al Donlevy W6GNI  
Director #1 Paul Williamson KB5MU  
Scope Editor Michelle Thompson W5NYV  
Treasurer Georgia Smith KI6LAV  
Repeater Chair Mike Pennington K6MRP



# September Board of Directors Meeting Minutes

The meeting was called to order at 7:03 PM by President Dennis Baca KD6TUJ. The meeting was held at the home of Al Donlevy W6GNI.

## Treasurer's Report

Georgia, KI6LAV presented the August Treasurers' report. Total assets are \$12,301.26 and prepaid dues are \$5916.00. The clubs self insurance has been moved to a CD. The separate CD is an effort to clarify the accounting for the self insurance equipment fund. A motion was made to accept the treasurers' report by Loren AD6ZJ and seconded by Mike K6MRP Mike. Motion Carried.

## Secretary's Report

Minutes approved.

## General Meeting: October meeting – Annual Auction

Auction setup begins at 5:30, Sellers at 6:00, Buyers at 6:30. Meeting starts at 7:00 at 5815 El Camino Real. Location details to be reconfirmed. Art KC6UQH our faithful auctioneer. Runners and staging needed.

## Membership Report:

Presented by Al W6GNI  
Current club membership is 305.

## Repeater Site/ Technical Report:

Mike, K6MRP gave the repeater site report. We had a lock-on on the 130 machine that lasted multiple hours. Once the error was identified Art KC6UQH did a full reset and restores the system. The Palomar Fire department has a new Unipole mast and would like us to pickup the tower PARC previously donated. Several power supplies and battery charger units are in need of repair. Loren AD6ZJ will look into repairing these. The site looks clean except for a fallen tree next to several trees marked for removal from SDG&E.

## Discussion items:

Need to post a message in the Scope reminding members to call a club control operator if there is a repeater malfunction.  
Power interruptions will likely be happening more often due to fire prevention activities. This just emphasis the need to have the repeater available for backup power.  
New Hams – We have a donation to help new hams with training and events. The donation is anonymous.  
The High School radio program is disbanding. A recommendation was made to send the funds to Handi Hams. The PARC board doesn't have direct jurisdiction on these funds but agrees in principle that the Handi-Hams group would be a good group worthy of supporting.  
Amateur Radio Appreciation Day 2009 – At HRO October 10<sup>th</sup> – Should PARC participate – Yes but how? We will check our calendars.  
September 12<sup>th</sup> ARRL and the Salvation Army are having a summit to discuss a coordinated emergency disaster preparedness plan. This information was given with late notice and PARC

will likely not have any officer participation due to prior commitments.  
Election Committee – Dennis KD6TUJ is in the process of pulling together a nominating committee. The committee will be announced at the October meeting.

## 2009 PARC Auction Statistics

184 items  
22 sellers  
55 bidders  
\$1,876 gross sales  
\$355.45 club profit  
27 donations to the club  
\$150 highest priced item (Yaesu VX5R)  
"Smartest" participants brought address labels or stamps  
ending time for operations 10:40pm

## OLD Business:

PARC Camper Trailer – The old trailer has been transferred to the tow yard is ready for termination. Look for something in the Scope. 75<sup>th</sup> anniversary logo contest. Should we do one? Will discuss further  
Generator – Is now operating and Dennis is looking into propane conversion kit and will see about getting a used tank from a local supplier.

# Ham Radio at Burning Man

by Paul KB5MU

Burning Man is an annual ... something. About fifty thousand people come together on a usually-dry lakebed in the Black Rock Desert in Nevada to assemble a temporary city, an intentional community, a shared participatory art show, a giant camp-out and, yes, party. That's not a good description, but no good description is really possible in just a few words. The values of this special community include self-reliance, mutual service, and active participation.

As you might expect, there is a ham radio contingent at Burning Man. Each day during the 9-day-long event there's a net held at noon on 2m simplex (146.52 MHz FM). By happenstance, I ended up acting as Net Control for that net on the first day we were there, and about 20 amateurs checked in. We exchanged information about local repeaters newly installed in nearby Gerlach, Nevada, and a temporary repeater on the air from inside Black Rock City itself. The really big news was that one of the hams was offering a treat of ice cream made with liquid nitrogen to all net members! Free, of course, since commerce is not allowed at Burning Man.

We were well equipped for the 2m simplex net, with a Diamond VHF/UHF antenna (a half-wave design that doesn't require a good groundplane) mounted temporarily to the ladder on our borrowed RV. A Kenwood TM-D710A provided for APRS tracking during the trip up and back, and plenty of power to cover the entire Black Rock City area. Most net check-ins were probably using handheld radios, and were still mostly able to hear

one another. An ordinary mobile station installation like ours in the RV was more than sufficient.

We also came equipped for HF operation, but that didn't work out quite so well. We had an Icom IC-756 Pro II transceiver



*Below is the back of the RV during the event. The operating station was crammed in between boxes and gear. Photo by KB5MU.*



*A panoramic view of Black Rock City, Nevada as seen from the top of the RV at 4:45 and Kindred. This area could be described as the "suburbs" of the city, as it was much quieter and less decorative than the city center. Photo by KB5MU.*





with all the trimmings, and enough power available to run it off the RV's systems, which included dedicated batteries (separate from the ignition battery!), a gasoline generator, and solar panels (one installed and two more deployable). We installed a Cushcraft R5 vertical antenna, which covers the 10, 12, 15, 17, and 20 meter bands and also does not require a groundplane. A heavy patio umbrella base provided the footing for three of the military fiberglass support poles that have been readily available on the surplus market lately. The base of the antenna was guyed with three lightweight cords anchored with stakes made of rebar. This simple installation survived the windy conditions on the playa, with extended periods gusting up to 40 mph, with no problem.

peaks of S9+20dB every 10 kHz or so, on top of a continuous background level of about S5. No actual signals were visible above the noise. This was rather discouraging.



In retrospect, the high noise level should not have been surprising. The area was packed with people using generators, which tend to be noisy, not to mention all sorts of displays with high-voltage neon lights, odd vehicles with all kinds of motors, and who knows what else. Probably the comb of noise peaks was coming from one specific nearby source, and the continuous background noise was the sum of all the other sources in the area.

There aren't any more sunspots at Black Rock City than anywhere else, so our best hope was for the 20-meter band, the lowest frequency covered by the R5. The 756 Pro II has a very convenient panoramic spectrum display feature, which is ideal for getting a quick look at the activity on a band. So, we took a look at the 20m band. Gaa! The band was wall-to-wall with noise. There were

back at camp. We would turn the radio on several times a day and check the bands, but the noise level remained high and the audible activity level remained near zero, so we wrapped up the trip with no QSOs in the HF logbook.



# October Auction Report and Photographs continued



*This year a number of recent-vintage transceivers sold in the \$150 range -- most years, equipment that expensive doesn't sell very well. A couple of rigs in the \$500+ category were offered, but (as usual) didn't sell. Boxes of random parts were fairly popular, as were distinctive older radios (in all conditions). Someone was clever enough to split up a large supply of ground braid into a dozen or so 25-foot hanks, which were distributed throughout the auction tables to be sold at different times. Each hank sold for the minimum bid of \$6 -- or more!*





# Repeater Site Report

Due to the unreliable switching of the two inverters from "standby to on" which supplies power to the repeaters, the technical committee has decided to change over to 48 vdc to 12 vdc converters for each repeater. This will be more power efficient and if one fails we will only lose one repeater and not the whole lot as with the inverters. To run the converters we will need to wire each repeater building with a 48 vdc distribution panel. We will need to move conduit from the old tin battery building to the now block building 48 vdc battery system.

On 9/30/09 Tom, KG6RCW and Mike, K6MRP went to the site to rerun the conduit and wire from the old battery building to the new batteries in the block building. (see pics) In the process of digging the trenches we ran into a big chunk of concrete about 6 inches thick which was eventually broken up with a sledge hammer to finish the trench. We definitely got our exercise that day. The conduit was then rerun and connected to the Hut which is attached to the block building. The trenches were then back filled and leveled. The two batteries (13.6 vdc) that power the control receiver were then moved from the old battery building to the hut. A small charger was added and the batteries were wired to the control receiver which was tested for proper operation.

On 10/4/09 we went back to the site to run the wire in the conduit that had been rerouted on the previous

visit. The weather was drizzly, windy and cold. We were able to run the new wire and terminate it on the fuse panel in the block building. The other end will be terminated on a distribution fuse panel which I am in the process of building. (see pics) More to come.



Work parties at this time are not a scheduled event and are done on an as needed bases. Anyone desiring to attend work parties please send me an email at [k6mrp@amsat.org](mailto:k6mrp@amsat.org) and I will notify you as soon as I know one is being scheduled. I would like to apologize to

the person who sent me an email volunteering for work party help. I lost your info. Please contact me again. Thanks.

Mike, k6mrp  
Repeater Site Tech  
[k6mrp@amsat.org](mailto:k6mrp@amsat.org)  
760 749 8888

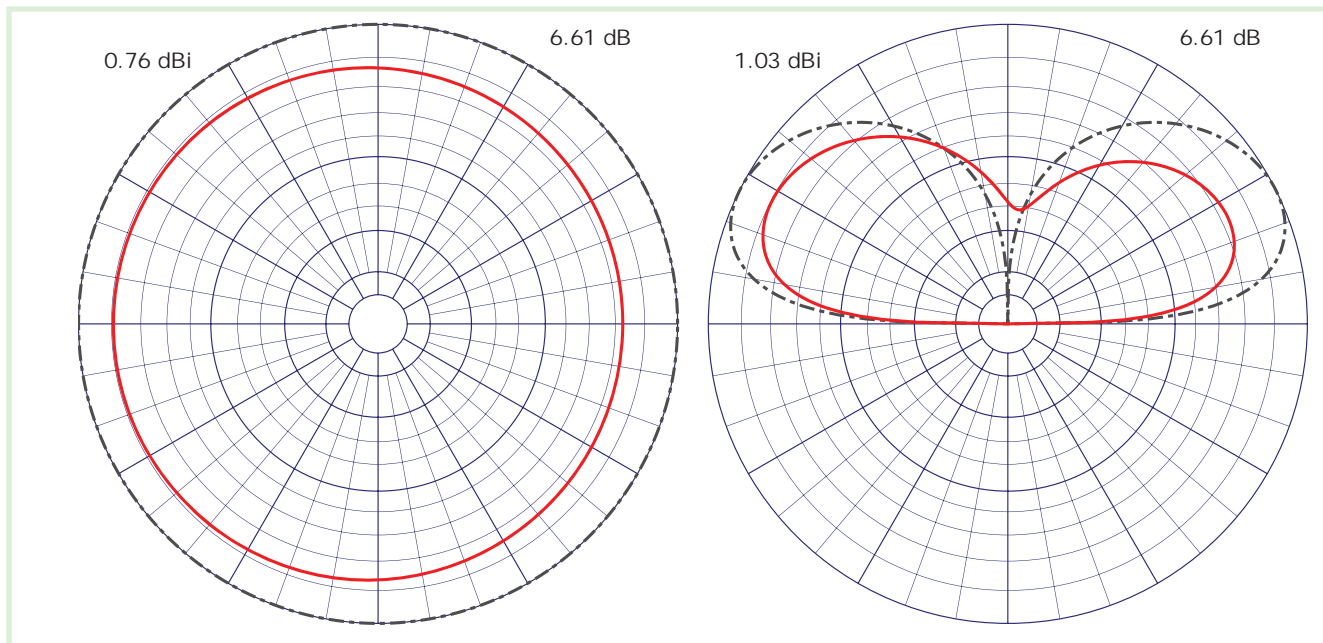


# I Wonder What That Antenna Pattern Would Look Like...

by Michelle W5NYV

Using the free software program cocoaNEC 2.0, I experimented with what would happen to a vertical antenna model if the ground radials were not perpendicular to the vertical element. This might happen if the vertical antenna was installed with the radials on a slope, or if the main vertical element was pushed over by accident or the wind. In the figure below, two antenna models are compared. On the left-hand side of the figure is an azimuth diagram (viewing the antenna patterns from above), and on the right-hand side is an elevation diagram (viewing the antenna patterns from the side). The dashed (black) line is a vertical antenna with main element and radials perpendicular to each other. The solid (red) line is a vertical antenna that has been bent over at a 15 degree angle with respect to its radials.

Losing a perpendicular angle causes the vertical antenna to lose gain, changes feedpoint impedance from  $27.7 + i 0.7\Omega$  to  $48.2 - i 7.1\Omega$ , and distorts the pattern in the direction of the tilt. In this case, the vertical is tilting 15 degrees to the right in the elevation diagram.



## Vertical Antenna With Perpendicular Radials

Frequency 8.250 MHz  
VSWR( $Z_0=50$ ): 1.8:1  
Average Ground - Rel. dielectric constant 10.000,  
conductivity: 0.04000 mhos/meter. (NEC-2 ground)  
Directivity: 6.18 dB  
Max gain: 1.03 dBi (azimuth 180 deg., elevation 26 deg.)  
Front-to-back ratio: 0.00 dB  
Front-to-rear ratio: 0.00 dB

## Vertical Antenna With 15 Tilt With Respect to Radials

Frequency 8.250 MHz  
VSWR( $Z_0=50$ ): 1.2:1  
Average Ground - Rel. dielectric constant 10.000,  
conductivity: 0.04000 mhos/meter. (NEC-2 ground)  
Directivity: 6.61 dB  
Max gain: -1.01 dBi (azimuth 180 deg., elevation 27 deg.)  
Front-to-back ratio: 1.45 dB  
Front-to-rear ratio: 0.66 dB

## Non-Ham Radio: WD9XSP

Dick Kalkofen K6KAL correctly identified the station pictured on the cover of last month's Scope.

The station, WD9XSP, is an experimental GSM cellular base station. The OpenBTS project built a temporary cellular system to support TXT messaging at Burning Man, in the 800 MHz commercial cellular band. Their RF hardware was based on the USRP (Universal Software Radio Peripheral) open-source SDR platform from Matt Ettus, N2MJI. More information is available at

<http://openbts.sourceforge.net/>



## Repeater Site Photos



## October Auction Photos



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Questions? Ideas? Comments? [W6NWG@amsat.org](mailto:W6NWG@amsat.org)

## Featured Program:

Loren AD6ZJ will be the featured speaker at our general club meeting at 7:00pm on 4 November 2009 at the Carlsbad Safety Center, 2560 Orion Way, Carlsbad, CA, USA. Loren will be speaking about Four-Square Antennas.