

SCOPE

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

The winner of a Yaesu FT-1802 pre-programmed mobile radio at the January meeting drawing was KJ6EJT Michael Bream. Michael was a first time visitor, joining PARC at that meeting. Welcome to the club, Michael, and congratulations on your new mobile radio!

*Below, January speaker Monica Zech draws raffle winner, Michael Bream.
Michael is pictured below right. Photos by KG6JEI*



Save the Date

Club Meeting
3 February 2010

Help us celebrate PARC's anniversary! DXpedition Program at 7:30pm.

Board Meeting
10 February 2010

Palomar Amateur Radio Club board meeting at 7:00pm at K2RP QTH

Hamcation!
February 12-14, 2010

<http://www.hamcation.com/>
Central Florida Fairgrounds
4603 West Colonial Drive
Orlando, Florida 32808

Membership

New Members Joining PARC:

KE4USZ, KJ6EDO, KJ6EDR, KJ6EJT, KJ6CLS. Several members reinstated their membership, which had lapsed. Thanks to all.

A number of members have elected to receive the SCOPE on the WEB. This saves the club the cost of printing and mailing, which is good. The 'not so good' is that they do not get the monthly reminder that their membership is up for renewal - which is printed on the mailing label for those that receive the SCOPE by mail. As a service, we are printing the call's of the web SCOPE members whose membership has expired recently, hopefully by oversight. The following memberships have expired within in the last couple of months: K0DHE, KF6GOF, W6CD, KI6JEX, and W6MBM.

PLEASE RENEW!!

AI
W6GNI

PALOMAR ENGINEERS

Box 462222, Escondido, CA 92046

TOROID CORES

Palomar stocks a wide variety of cores and beads. Our RFI Tip Sheet is free on request.

Our RFI kit keeps RF out of your telephones, TVs, stereo, etc. **Model RFI-4**
\$35 +tax+\$8 to ship.

BALUN KITS

Ferrites slip over coax. Shrink tubing holds them in place. Works from 3.5-60 MHz
(Use two kits for 160m).

Model BA-58 (for RG58, RG8X & similar cables up to 1/4" dia.) \$8.50+tax+\$8 S&H/order

Model BA-8 (for RG-8, RG-213, 9913 and similar cables up to 1/2" dia.) \$16.50+tax+\$8 S&H/order.

See catalog at www.Palomar-Engineers.com

Please check our complete ads in **QST**, **CQ**, and **WorldRadio** magazines.

Fold and Staple - The last Fold & Staple for 2009!

KB6NMK Jo, WA5ACE Sonny, W6GNI AI & Kathy, N6UZH Terri

Greetings to all members and readers of the Scope! I'm happy to present another issue of the club newsletter.

This month, our cover features our January meeting raffle winner.

I talk about radio meteor science and ham radio on page 3. Also on page three is a bit of cool jazz news from Mitch K6BK.

Meeting Minutes are on page 5. Read about the VHF Sweepstakes on page 6.

Repairs to the repeater site are detailed with photographs on page 7.

Ron describes the Collins 75A2 Receiver starting on page 8. PARC is on Facebook, page 10.

We put out a call for a Field Day Chair on page 11.

Want to make the job fun and easy? Volunteer with a friend! Better yet, volunteer your friend. This will give you a chance to critique them in action. They will be sure to appreciate it.

Please send questions, comments, and articles (ideas welcome) to Scope@palomararc.org

Yours, -Michelle W5NYV

HAM RADIO OUTLET

Jose XE2SJB
Jerry N5MCJ

H
R
O

KENWOOD
rf **CONCEPTS**
DIAMOND
US TOWERS
KANTRONICS
YAESU, MFJ, ICOM
BENCHER, Inc.
HUSTLER
COMET
AMERITRON

Astron,
AEA,
OUTBACKER
Larsen Antennas
TEN-TEC
Hy-gain, Tri-EX,
Cushcraft And Others
too
Numerous to
Mention!

Drop in to see our display of working equipment. Find out about Pkt location determining equipment (APRS). Check our complete line of magazines, ARRL books, license manuals, and Bulletin Board with all sorts of Goodies listed.

Open: 10a.m. – 5:30p.m.
Monday thru Saturday *Ask about our great prices*
858 560-4900
or toll free 1-800-854-6046

Directions: On 163, take **Clairemont Mesa Blvd.** off ramp to East. Stay in right-hand lane. Turn right at stoplight. As you are turning right you can see our beams in this shopping center. Travel 100 yds. On Kearny Villa Rd. and U-turn back to shopping area and HRO sign. Be sure to see our equipment in action on **real** antennas!

For Sale

Nothing listed this month!
Have items that need to find a new home? Advertise here!
Send your ads to
scope@palomararc.org
Classified ads are free for members of the club.

Mitch K6BK writes,
"If you like smooth spontaneous jazz, my son Brendan K6BMK (age 16) recently played a paying gig at the outdoor reception of the La Jolla Motor Car Classic at The Cove with three other students from The Bishop's School.

His brother Wes K6WES recorded and produced an album from it, which can be downloaded free at the following website, or you can just listen to a sample track there.

73, *Mitch K6BK*

[HTTP://WES.LY/MUSIC/JAZZ-AT-THE-COVE/](http://WES.LY/MUSIC/JAZZ-AT-THE-COVE/)

Radio-Meteor Science & Hams

by Michelle W5NYV

Meteors come in at least two categories. Members of a particular shower (e.g. Leonids, Perseids), and sporadic, which don't seem to be members of a particular shower. Identifying whether or not sporadic meteors are a member of a particular shower is an active area of research where amateur astronomers can contribute. Since meteors can be detected using radio, amateur radio operators that are interested in astronomy can certainly help.

If a radio transmitter at a distant location is transmitting, and a receiver is receiving, and a meteor increases the electron density in the ionosphere (ionizing the atmosphere) in between the transmitter and receiver, then the meteor can be detected. Hams that are familiar with meteor scatter will recognize this situation right away.

Meteor tails have very high charge density and are therefore very good at reflecting radio waves. While non-hams generally use faraway commercial FM radio stations (so far away as to be out of range, without a station on frequency nearby), hams can use stations that are on ham radio frequencies.

There are no well-defined observing procedures. There are no commonly-accepted observing results from different methods. However, there is a group that is trying to figure it out. The most active radio-meteor group operates under the auspices of the International Meteor Organization (<http://www.imo.net>). Want to contribute? Check them out! Hams can certainly help assist science in this area.

Monica Zech Presented at the January Meeting

photos by Conrad KG6JEI



74th Anniversary Cake... What will it look like?



Cake photo courtesy of DJFrantic. Find more of DJFrantic's fine photographs on the web at:
<http://www.flickr.com/photos/djfrantic/>

You'll just have to come to the meeting to find out!

There will be some celebratory food at the February meeting. If you'd like to bring a dish to share, please do. We plan to have a cake and cakes can get lonely when they're all by themselves on the table.

Ham Haiti Relief Efforts

If you know of any local hams that are involved in the relief and communications effort in Haiti, please let the Scope know. We would like to publish a description of your work and experiences.

Many of us have been monitoring the various amateur radio nets providing communications support in Haiti. An article about communications, including ham radio, can be found at:

http://wiki.radioreference.com/index.php/Haiti_Earthquake_2010

A link to ham radio live feeds via internet:

<http://www.radioreference.com/apps/audio/?stid=283>



January Board of Directors Meeting Minutes

Treasurer's Report

Georgia KI6LAV presented the December Treasurer's report. Total Assets \$12,249.57, Total Liabilities \$5,571.00. Motion to approve by W6GDK, second by W6GNI. Approved

The permit fee of \$20.00 was paid to allow holding raffles. CD number 50 is maturing. Decision to split the CD with \$60 into savings, \$1000 into checking and slit the rest (\$5000) into two CDs.

Secretary's Report

Gary W6GDK presented the December Secretary report. Motion to accept by KB5MU, second by KI6LAV. Approved

General Meeting:

The February program will be presented by Wild Bill WB6BFG on Jersey Island

Membership Report:

Presented by Al W6GNI – membership currently 291 members.

Repeater Site/Technical Report:

There is a leak in the roof above the 6 meter repeater cabinet. A temporary fix is in place, but needs a permanent patch.

Loren, AD6ZJ was asked to chair the repeater technical committee. Motion to approve appointment by KB5MU, second by KG6JEI. Approved.

Upcoming General Meeting Topics

February 2010 - PARC 74th Anniversary and DXpedition program about Jersey Island by Wild Bill and Ellen.

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

OLD Business:

The generator at the site may have an auto start kit available for it.

NEW Business

KB6NMK requested to modify the preamble for the ARES net on Sunday mornings. Other corrections were also suggested. Motion to approve changes by W6GDK, second by KB5MU. Approved

*Below, 2010 PARC Board of Directors photographed at the January board meeting.
From left to right, Conrad, Paul, Al, Georgia, Gary, Dennis, and Ron. Photograph by Michelle.*



SANDARC is moving their meeting night to the third Tuesday of the month at the Kearny Mesa Rec Center, time is 1900 to 2100.

Conrad noted that the old KGB equipment is still on site. Notice to remove was sent long ago and we now consider it abandoned. Old battery shed is now nearly empty and we will soon be able to decommission the building.

We need a Field Day Chairman.

Place of next Board Meeting: Home of Ron Pollack K2RP in Encinitas at 7:00 PM on February 10 at 1900.

Motion to adjourn at 8:41 PM by KD6TUJ.

Board Members Attending January Meeting

President Dennis Baca KD6TUJ

Vice President Ron K2RP

Secretary Gary Kent W6GDK

Director #2 Conrad Lara KG6JEI

Membership Al Donlevy W6GNI

Director #1 Paul Williamson KB5MU

Scope Editor Michelle Thompson W5NYV

Treasurer Georgia Smith KI6LAV

VHF Sweepstakes is This Weekend

One of Many Club Entry Contests Sponsored by ARRL

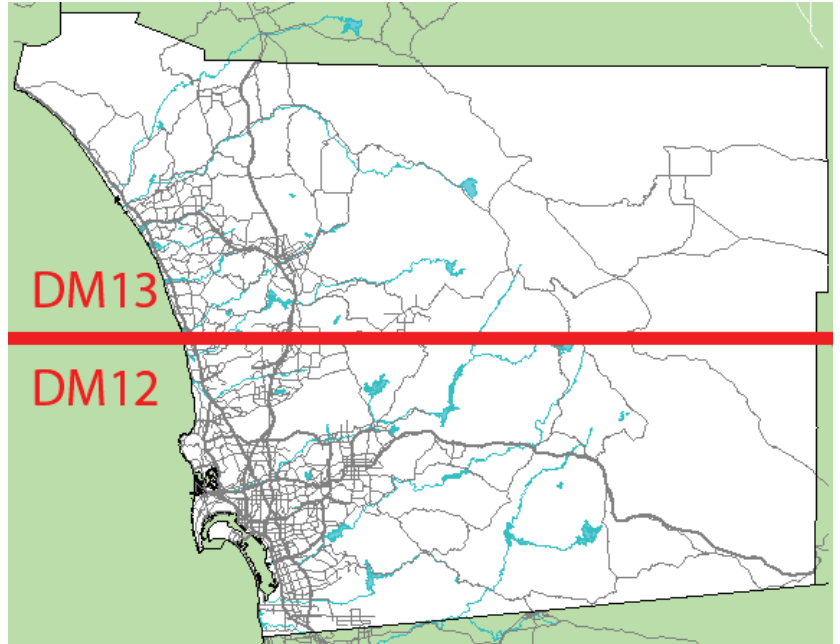
by Ron K2RP and Wild Bill WB6BFG

Find contest rules at: <http://www.arrl.org/contests/rules/2010/jan-vhf-ss.html>

The exchange is simply the grid square, which for most of us in North County is DM13. Most of us in San Diego will be in DM12. The map at right shows the dividing line between the two grids. For any location in San Diego County, if your latitude is over 33 degrees, you're in DM13. If your latitude is 32 point something degrees, you're in DM12. The dividing line crosses Interstate 5 about half a mile north of Lomas Santa Fe, and Interstate 15 just north of Camino Del Norte.

Whoever is active on the repeater can announce this as well. Several of our members and friends are active in this one, and even local contacts are appreciated!

This contest is a great example for folks to see how far they can talk VHF (6 meters on up) frequencies. This has implications for emergency communications and could serve as a quick and simple test of equipment and readiness.



Here are links about grid squares:

<http://www.arrl.org/locate/locate.html>

<http://www.icomamerica.com/en/downloads/Default.aspx?Category=181>

http://www.levinecentral.com/ham/grid_square.php

The contest could be done as a club effort. There are eight ARRL-sponsored contests that are designated as Affiliated Club Competitions (ACC) for ARRL and RAC affiliated clubs. The contests are January VHF Sweepstakes, RTTY Roundup (January), (February and March) International DX Contest, June VHF QSO Party, August UHF Contest, September VHF QSO Party, November Sweepstakes, (December) 160-Meter Contest, and the (December) 10-Meter Contest.

Activity is mostly sideband. This contest offers participants a chance to make random 2m contacts, which is somewhat unusual.

Brief Introduction to Grid Squares

by Paul KB5MU

The Maidenhead Locator System is used to divide the world up into grid squares, identified by a four-character or six-character grid square locator. In VHF-and-up contests the exchange usually includes the grid square. Using the form at <http://www.amsat.org/amsat/toys/gridconv.html> you can enter either a grid square locator or the latitude and longitude of a location. If you enter a grid square and select Convert to Lat/Lon, the latitude and longitude fields will be filled in with the position of the center of the grid square. A good online reference can be found at the following web site.

<http://www.arrl.org/locate/gridinfo.html>

Emergency Leak Repair at the Repeater Site

by Conrad KG6JEI

On Sunday January 17th Dennis KD6TUJ along with Conrad KG6JEI went up to the PARC repeater site to investigate the cause of a leak in one of the roofs discovered during the last rainstorm. An inspection on top of the building by Dennis revealed a cracked and failing weather sealing line (see below) where two levels of roof structure meet.

We were fortunate to have the club's official new repeater technical chair Loren AD6ZJ join us on site as well (photo at right). He took up the job of collecting spare parts to be tested, inventoried, and in many cases repaired or aging parts replaced prior to failure/utilization.



This leak allowed water to seep into the sub-roof of the building and eventually drip down directly upon the 6 meter repeater. This failed seal was stripped and redone in order to provide weather proofing for the rains that fell starting Sunday night (photo in center). The emergency water ducting previously erected in December was allowed to remain in place as a back-up (pictured below).

Components such as decades-old electrolytic capacitors will be replaced in order to ensure we have spare parts that not only work but will last through the long duty cycles we subject our repeaters to. This will allow club technicians in the future to have reliable working parts on site that are known working for quick swap in replacement repairs. Sorting process pictured below.



Collins 75A2 Receiver

I Call it "The Deuce!"

by Ron K2RP

In July, 1950, Collins Radio took a double page ad in QST to announce their upcoming 75A2 receiver, which was due to start deliveries in October. The ad detailed the improvements over the current 75A1, which had appeared 3 years earlier.

A bit of history is in order. Collins Radio was founded in the early 1930s by Art Collins to produce broadcast transmitters, and then went into the amateur transmitter field as well. At this time, almost all ham transmitters were homemade, so this alone was an innovation.

What set Collins apart from the other manufacturers, from the very first until exiting the amateur market in the 1970s, was that every unit and every model was top of the line, of the highest quality, and built to the strictest standards. Other manufacturers like Hammarlund, National, and Hallicrafters produced a wide variety of models for a range of budgets and preferences, but Collins had but one model transmitter and receiver at any given time of a type, with no "budget" or compromise models available. An analogy that comes to mind is General Motors and Hallicrafters. GM builds the smallest Chevy and the most luxurious Cadillac, and Hallicrafters, in 1950, produced the S38 for \$40 and the SX42 for \$275. Rolls Royce and Collins made only Rolls Royces!

And they were priced like a Rolls Royce, too! The introductory price of the 16 tube 75A2 in late 1950 was a whopping \$420, plus external speaker. Even at that price, there was a long list of orders awaiting deliveries that fall. Compare that to the Hallicrafters SX71, a popular 14 tube double conversion general coverage receiver of the same era, which cost less than half as much.

What exactly did Collins offer that made hams

willing to part with that much money? First of all, the Collins 75 series were ham-band-only units. Virtually all other manufacturers offered only general coverage receivers, until National introduced the NC300, Hammarlund debuted the HQ110 and HQ170 and Hallicrafters brought out the SX101, all in the mid 1950s. But it was the performance, in terms of stability, selectivity, and sensitivity, that stood out. Collins had grown, as many other electronics companies, during the Second World War, filling the enormous demand for communications, radar and other electronics. The military specified exactly how these were to be made, and they

were always rugged and reliable. When converting back to peacetime production, some companies reverted to consumer level construction, while Collins maintained their military specs right to the end. One of the most striking differences in design was in the tuning circuitry.

Traditionally, a multi-section

variable capacitor was "ganged" to tune the oscillator, antenna, RF and IF stages simultaneously. The Hammarlund receivers used 9 gang capacitors, in an attempt to keep similar bandspread among bands. Collins developed the famous "PTO," for permeability tuned oscillator, for VFO tuning. Instead of using capacitors to tune, the tuning knob moves an iron slug in and out of a coil, thereby changing the inductance of the tuned circuit, which has a fixed capacitor, and thereby the frequency. To tune the other stages, the tuning knob is mechanically connected to a bar that moved other iron slugs in and out of coils, thereby tracking the stages. This gave greatly increased stability and linear tuning rates. The oscillator is crystal controlled, contributing to stable operation.

The 75A1, initially called the 75A, was introduced in 1947. It, too, was an instant success, but a number of improvements were made in the new model. The 160 meter band was added, as was a separate CW noise limiter and an antenna trimmer. Prior to the days of product detectors for



SSB, CW and AM, signals were handled very differently. AVC was only available for AM. On receivers of this era, when the BFO went on, the AVC went off!

The appearance of the receiver was changed, with the multi band tuning dial changed to a drum type, with only one band appearing at a time. The vernier allowed 1 kHz resolution up through 15 meters. This basic design was continued for many years through the 75A3 and 75A4 receivers, and was only changed when the famous "S Line" was introduced, continuing the trend to much smaller radios. It is interesting that the 15 meter band was included. The band was allocated in 1947, but not released for amateur use several years after that.

Another major change was to the "miniature" 7 and 9 pin tubes, replacing the octal tubes in the 75A1. The effective 5 position crystal filter with phasing control was improved, and additional tuned circuits in the 455 kHz IF were added.

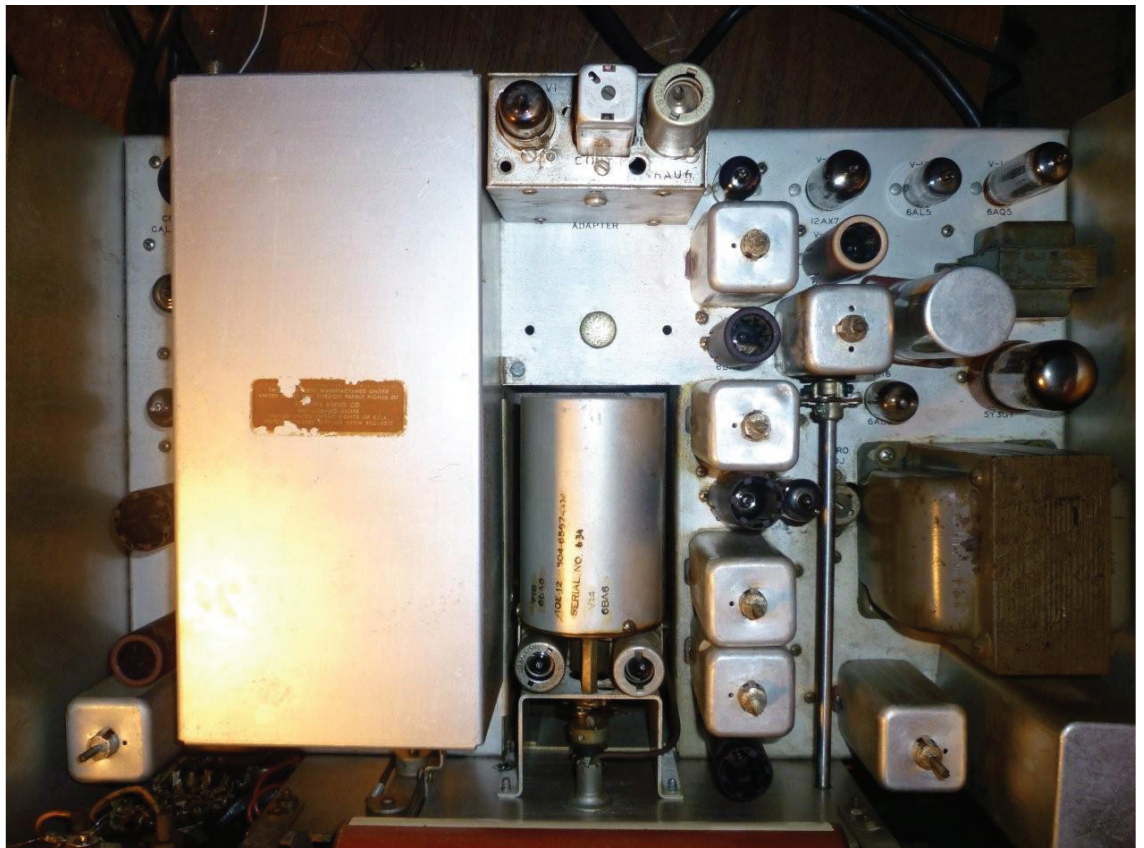
For such a sophisticated radio, it has always surprised me that a 100 kHz calibrator was not included, but was merely an option. It wasn't until the 75A4, the ultimate receiver of the 1950s, was introduced that Collins made the calibrator a standard item. Also optional was a narrow band FM adapter. This was a system touted in the early 1950s, but one that never gained favor, probably because of the rise in popularity of sideband. The production run of this fine receiver, though, was only about two years.

In late 1952, the 75A3 made its debut. There were only two differences. One was the introduction of the famous mechanical filter, with a 3 kHz bandwidth. A 1 kHz bandwidth filter was available as an option, and was switchable from the front panel if both were installed. The other was the price. The new model commanded \$530.

But, those hams with a 75A2 were not left behind! Collins offered an upgrade service. For \$125, plus the cost of shipping to Cedar Rapids, Iowa, the factory would add the filter, perform minor repairs, and realign the unit, making it into a new 75A3! The modified receivers were renamed "75A2A."

I don't know how many hams took advantage of this, but I've never seen one.

The unit pictured for this article is fairly new to my collection, and is an outstanding performer. After nearly 60 years, only a few capacitors needed replacement.



Listening to SSB and CW requires the old technique of advancing the audio gain to max, and using the RF gain as a volume control, since there is no AVC with the BFO on. It becomes obvious when listening to an SSB round table with some signals much stronger than others. The stability is nothing short of astounding for such old components. After just a 5 minute warm up, there is virtually no drift at all, and an SSB net can be followed for hours without touching the tuning. Operating Collins equipment, compared to other well respected equipment of the time, is like driving a Rolls instead of a Ford. They both get you there, but...

Geek Crew!

by Michelle W5NYV

Members of the Palomar Amateur Radio Club can be found in many ways. We're on the air, we're at club meetings, we attend events, and now we're on Facebook.

If you're not familiar with this social media site, it's an extremely popular website that allows people to connect with other people of similar backgrounds, interests, hobbies, and purposes.

Palomar Amateur Radio Club has a group page on Facebook. Membership is open to anyone interested in the club.

Meeting announcements, a discussion area, and a "wall" for people to post messages on are all part of the Facebook group page.



There is also an area to upload photos by and of the members. Above is a photograph submitted to the Facebook PARC page by Jerry Dickinson. What a great looking Crew!

Officers of PARC are recognized with their title on the site, and updates on the Scope and other club activities can be found here. Facebook has many ham radio groups, besides PARC. Some examples are QRP Amateur Radio, Kenwood, various country groups, and DXing and contest groups. Finding additional hams on Facebook, besides people that you already know from your email address book, is straightforward. In the search box, put "amateur radio" in the search box on the upper right. Then, narrow the results to "people" on the left-hand side of the page.

NiCd Lady Company

Grace Lloyd
N6WPA
grace@nicdlady.com

www.nicdlady.com

Custom Assembly • Rebuilds • Batteries
• Lead Acids • Replacement Packs
20585 Camino Del Sol • Unit B
Riverside, CA 92508
800/906-6423
951/653-8868
Fax 951/653-5189

Your Complete Battery Source

**RF PARTS**
COMPANY
From Milliwatts to Kilowatts™

Complete inventory for servicing amateur
and commercial communications equipment

RF POWER TRANSISTORS — TUBES — POWER MODULES

Diodes • Relays • Trimmers • Capacitors • Heatsinks
Transformers • Chokes • Combiners • Wattmeters • Books

3-500ZG • 811a • 572B • 4-400a • 6146B • 8072 • 8560AS
3CX400A7 • 3CX1200A7/D7/Z7 • 3CX1500A7 • 3CX3000A7
4CX250B • 4CX250R • 4CX400A • 4CX800A • 4CX1500B

Merit W6NQ • Gary K6CAQ • Steve K6NDG • Rob WA6GYG • Doug K6DRA

760-744-0700

www.rfparts.com • orders@rfparts.com



CQ CQ Field Day Chair

by Paul KB5MU

ARRL says Field Day is "not a contest" – but they list it under Contests on their web site and it has Rules like any other contest.

Like this one:

Object: To work as many stations as possible on any and all amateur bands (excluding the 60, 30, 17, and 12-meter bands) and in doing so to learn to operate in abnormal situations in less than optimal conditions. A premium is placed on developing skills to meet the challenges of emergency preparedness as well as to acquaint the general public with the capabilities of Amateur Radio.

PARC has participated in Field Day each year (on the fourth full weekend of June) for decades. Some years the emphasis has been on "any and all", some years it has been on "as many stations as possible"; occasionally the most applicable clause has been "less than optimal conditions". It's nearly impossible to avoid developing some skills and learning some lessons at Field Day. The lessons are not always the ones we expected.

It's early December, and Field Day is half a year

off. Much of the detailed work to prepare for Field Day won't really get started until the last few weeks before the event. If you're just going to drop by and enjoy the event or even operate a shift at one of the stations, you probably don't need to start worrying about it yet. But somebody does.

That somebody is the club's Field Day Chairman, and we need a volunteer to step forward. The Field Day Chairman sets the tone for the whole event. He or she influences how ambitious the club's participation will be, from a very casual fun outing to a hard-core competitive effort. Perhaps most importantly, the Chairman is responsible for obtaining a great site that facilitates the kind of Field Day event planned. It's much nicer when the site is decided on and confirmed well in advance.

If you've attended a number of PARC Field Day events, you'll have an idea about how we've habitually done them. You may have ideas about how we could do them

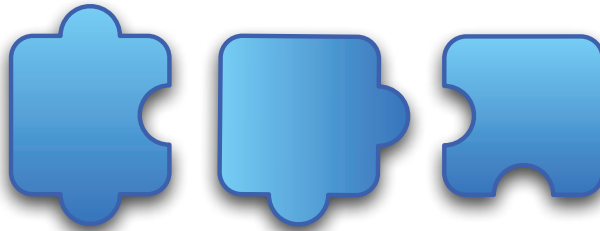
better. As Field Day Chairman, you would have an opportunity to try. The Club owns lots of equipment to make Field Day easier – you will decide how best to make use of it (or not). The Club has many members with all kinds of experience – you will recruit the talent to make Field Day work out best. You might (or might not) delegate most of the detailed work of Field Day to a cadre of experienced Band Captains, leaving your own time

free for overall coordination. If you love the way PARC Field Day has always been done, you can choose to follow in those footsteps. If you think we've had it all wrong, the Board is ready to listen to you and (I predict) will endorse your plan, if you can make it work.

Please consider volunteering to serve as 2010 Field Day Chairman.

Email board@palomararc.org to volunteer or if you have questions.

Field Day
2010 -
Where do
you fit in?



IMPULSE Electronics

(760) 747-5277 – (866) 747-5277

www.impulseelectronics.com

**Your Connection for
Emergency Power Solutions**

Power Products

Power Pole Connectors – Power Cables – Tools
AGM Batteries – Red/Black Zip Cord 14 – 8 GA

West Mountain Products

RIGrunner – RIGblaster – Accessories
PWRgates – Computerized Battery Analyzer
Coax Cable – Coax Assemblies – Adapters
Terminals – Coax Connectors – Battery
Chargers – Battery Accessories
Email sales@impulseelectronics.com



SCOPE
P.O. Box 73
Vista, CA 92085-0073

Return service requested

PERIODICALS
POSTAGE PAID
AT VISTA CA
92085-9998

Scope (USPS #076530) is published monthly by the Palomar Amateur Radio Club 1651 Mesa Verde Drive, Vista, CA 92084. POSTMASTER: Send address changes to SCOPE, P.O. Box 73, Vista, CA 92085. Periodicals postage paid at Vista, CA 92084. Dues are \$20 per year or \$35 per year for a family. Dues include a subscription to Scope.

Editor: Michelle Thompson W5NYV

Submissions: scope@palomararc.org

Questions? Ideas? Comments? W6NWG@amsat.org

Featured Program:

Wild Bill WB6BFG and Ellen N6UWW will be speaking at our February meeting about the DXpedition to Jersey Island for the CQ WW SSB contest at 7:30pm at the Carlsbad Safety Center, 2560 Orion Way, Carlsbad, CA, USA.

Arrive at 7:00pm to socialize and help **celebrate our 74th anniversary as a club!**
We look forward to seeing you!