

Front of the Human Badge from DEFCON 24



Save The Date

PARC Board of
Directors Meeting
7pm
14 September 2016
14322 Pomerado Road,
Poway, CA 92064

Club Meeting
7:30pm
7 September 2016
Carlsbad Safety Center, 2560
Orion Way, Carlsbad

Sidewalk EME
by Doug Millar K6JEY
(Earth-Moon-Earth)

Oceanside CERT Academy
6, 8, 13, 15 October 2016
See page 9!

San Diego Hamfest
1 October 2016
and
San Diego Maker Faire
1-2 October 2016

PARC Picnic!
17 September 2016
San Dieguito Park
Area 4
Starts at 10:00
See page 12!

President's Corner

Greetings fellow HAMs!

As you have probably heard by now, we've had a slight change in leadership of the club as Charlie, NN3V, resigned the Presidency a little over a month ago to re-focus his energies on personal matters. At the last board meeting, the board voted to formally appoint me, Joe K6JPE, to the post of President, and bring aboard Michael Gottlieb KB6D to fill the Vice President role.

Rest assured that the board is united in our desires to continue moving forward and we have a lot of exciting ideas coming soon! A big thank you to Charlie for his tenure with the Board and continued support on the sidelines. And thank yous to all the other board members, and to the membership for your continued participation in making this club successful!

Check out the rest of this issue of the SCOPE for news about the Picnic, which will be held this month (September) instead of August this year (hopefully the temperature will treat us better waiting an extra month!), and plenty of other great content put together by our editor, Michelle W5NYV.

73 de K6JPE
President
Palomar Amateur Radio Club



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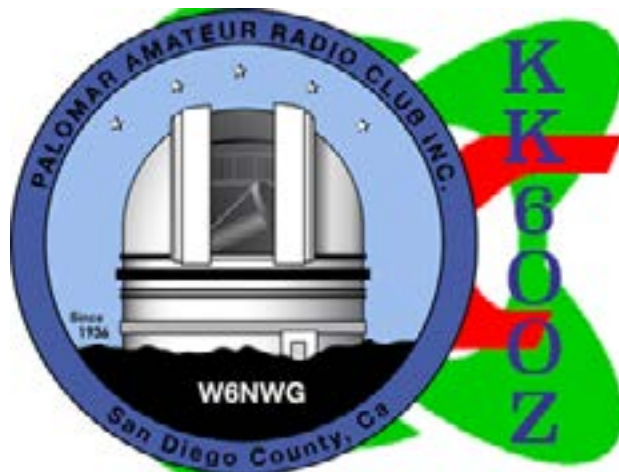
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Please help us test a potential upcoming feature for our repeater site. We have a Wires-X node on 147.555. It's KK6OOZ, and we would like to invite club members with C4FM capability to use it, upload text and pictures, and report if you are able to reach it in its current location.

The equipment is currently set to high power. Thank you to everyone that reported in their attempts at low power!

Eventually, this node may be moved in frequency to link one of our digital repeaters to the Wires-X international network. We need a simplex mapping in order to best evaluate the correct power settings and decide whether or not the node's location will work out.

Attempt to check in and report your success to board@palomararc.org
Thank you!



KK6OOZ Wires-X QSL Card for PARC Experiments



A QSL Card that we've received over Wires-X

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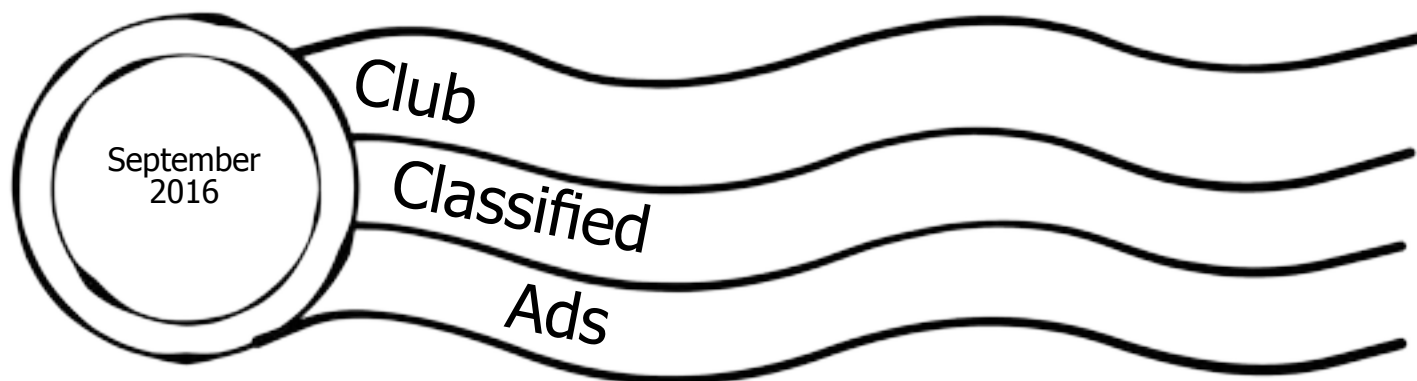
Merit W6NQ • Gary K6CAQ • Steve K6NDG • Rob WA6GYG • Doug K6DRA

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FOR SALE!

Yaesu FT-270R -- Rugged 2m HT

5 watts RF, 800mW audio for noisy environments, submersible 30 min at 3 feet (IPX7). New condition, two months old, used once in the field. Includes packaging, documentation, etc. \$80. Email to KK6LWE@arrl.net

For Sale, Open to Best Offers:

Quantity Discounts Available.

HP 8640B RF Signal Generators, 500 KHz to 512 MHz, Reverse Power Protection (Option 3). Built like a Swiss Watch. QTY = 2. Calibrated, synthesized, spectrally pure. \$175 each.

HP 8590A spectrum analyzer, 10 KHz - 1.5 GHz, 50 Ohm input, \$250.

Tektronix 2465 CTS oscilloscope, DC - 300 MHz, 4 Channel, with two 6' probes. \$250.

Pansat satellite OTA receivers, LNB converters, antenna accessories, video signal analyzer: Make Offer

Video CRT monitors, color, NTSC composite or RGB input. \$10 each. 19" rack mount style.

Video generator. Sencore CM2125. Computer Monitor Analyzer, VGA / HDTV generator. \$50.

John Kuivinen, WB6IQS
Vista, CA

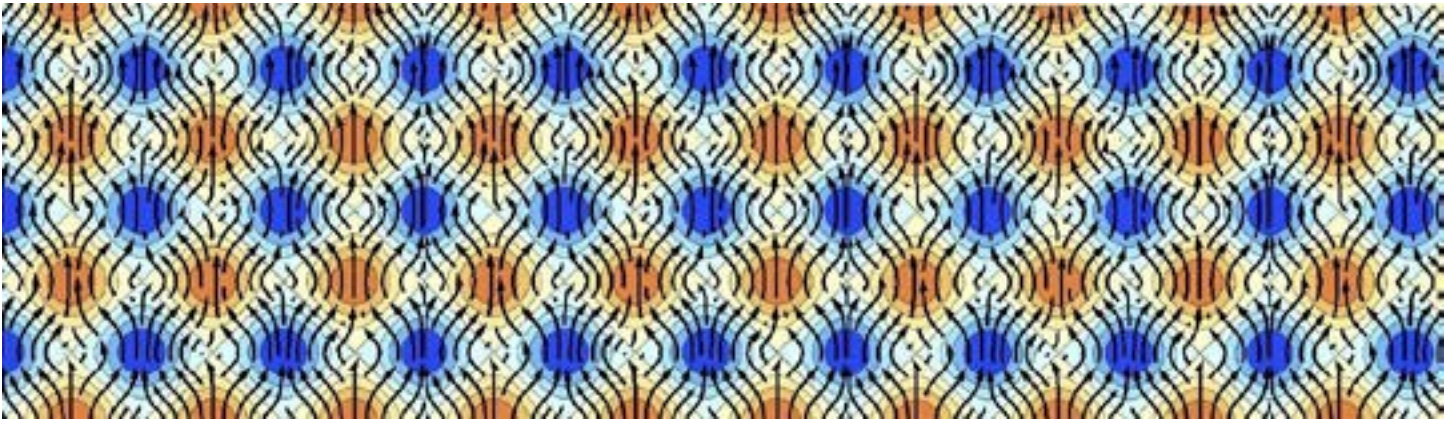
Advertisements are free for members

Have items that need to find a new home? Advertise here! Send your ads to scope@palomararc.org

Club Members ONLY!

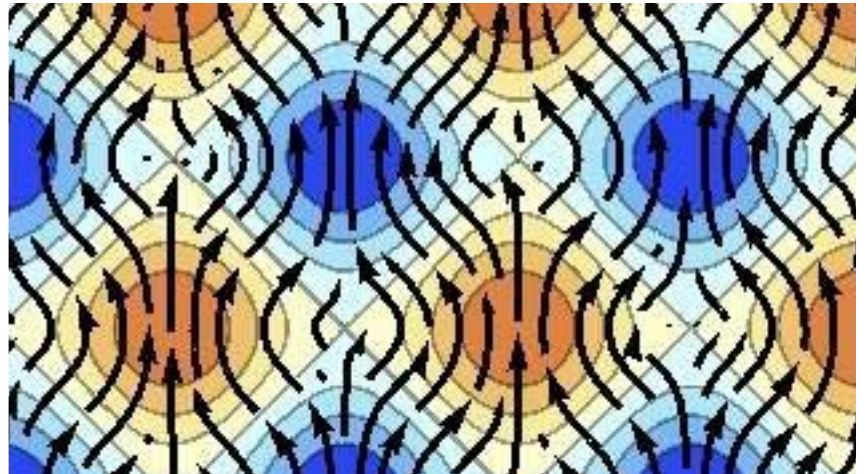
PARC has a tube bank that includes many 6 & 12 volt receiving tubes (and some transmitting types) for use by club members to repair their own personal equipment. Not for commercial use or resale. If we have your requests, we will pre-check the tubes and deliver them to you at the next club meeting.

Contact John WB6IQS WB6IQS@att.net



This beautiful artwork is a space time energy flow diagram. The horizontal axis is distance on a transmission line and the vertical axis is time. The diagram shows a standing wave where the reverse and forward waves are equal in amplitude. The energy bounces back and forth, transforming between electric (orange) and magnetic (blue) energy.

The creator, Hans Schantz, wrote a blog post that includes a link to a paper as well as a video. Blog entry included below, compliments of Mr. Schantz.



On Energy Flow in Standing Waves

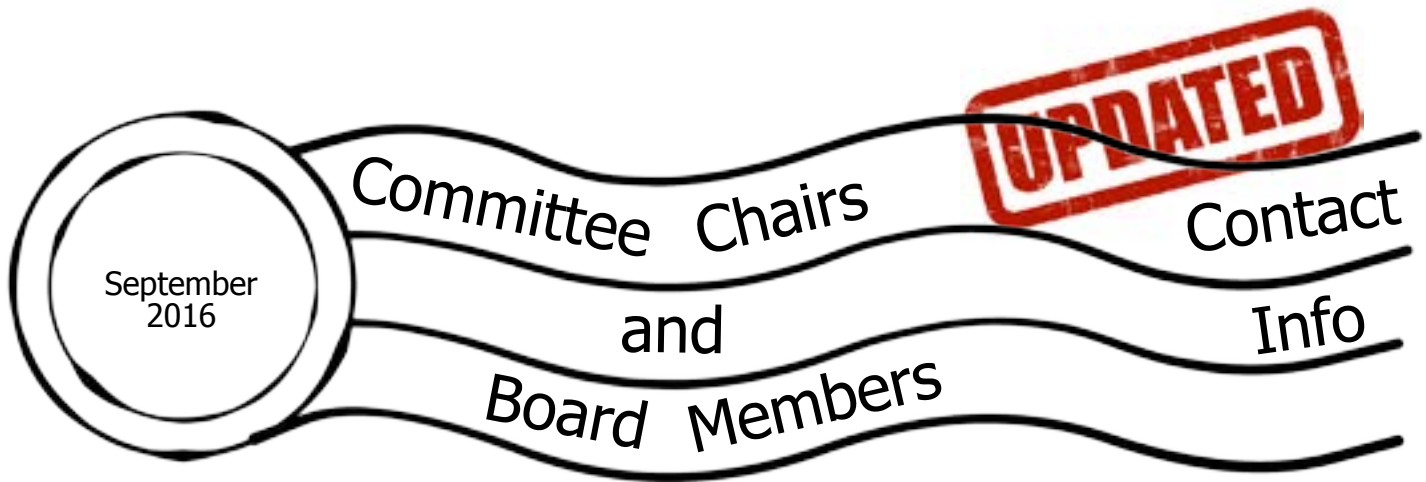
2 Oct, 2014 by Hans

The Allerton Park and Retreat Center in Monticello, IL was the site of the 2014 Antenna Applications Symposium.

Last week, I traveled to the Allerton Park and Retreat Center to present a new paper on fundamental electromagnetic physics at the 2014 Antenna Applications Symposium. My paper, "On Energy Flow in Standing Waves," analyzes and explains the propagation of energy in a variety of standing waves. The conventional point of view in electromagnetics holds that near fields only matter close to sources, sinks, or scatterers of electromagnetic energy. I argue that near-fields arise whenever multiple electromagnetic waves interact. Although fields pass through each other, in so doing, the individual waves exchange energy with each other.

These insights have helped Q-Track create better precision location systems, and may be helpful in making antennas work better in multipath environments. The standing wave perspective also has fascinating implications. The propagation of electromagnetic energy from source to destination follows, not ideal optical rays, but rather a complicated meander or drift as particular fields perturb the energy of the collective electromagnetic superposition one way or another. Also, it appears that although electromagnetic signals and fields propagate at the speed of light, electromagnetic energy only rarely propagates so quickly and instead ebbs and flows at a drift velocity less than the speed of light. The full text of my paper, "On Energy Flow in Standing Waves," is available if you sign up on ResearchGate.net.

A video of my talk is also available at <https://youtu.be/IEYootPnWfc>



Current Board of Directors

President	Joe Peterson K6JPE	(619) 630-8283
Vice President	Michael Gottlieb KB6D	(858) 212-4646 (text welcome)
Treasurer	Tom Ellett W0NI	(858) 546-1148
Secretary	Sandy Pratt KK6EED	(858) 748-2611
Director #1	Kevin Walsh KK6FRK	(858) 722-5069 (text welcome)
Director #2	John Walker AC7GK	(949) 212-5533
Membership Chair	Glen Christensen AI6RR	(858) 735-1144
Repeater Technical Chair	Mark Raptis KF6WTN	
Scope Editor	Michelle Thompson W5NYV	(858) 229-3399 (text welcome)

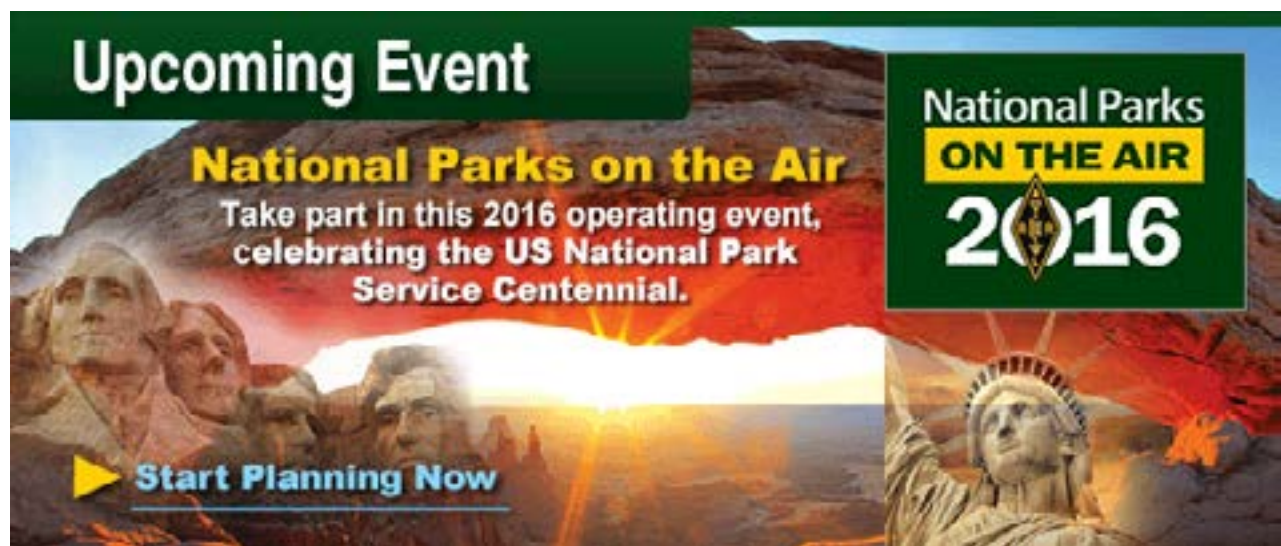
Not on the Board

Repeater Site Chair Mark Raptis KF6WTN (acting)

The board members might have callsign@amsat.org mail aliases.

Committee Chairs

Digital ATV	open, group forming	atv@palomararc.org
EchoLink	Bernie Lafreniere N6FN	N6FN@niftyaccessories.com
HF Remote	HF Remote SIG	hfremito@palomararc.org
mesh networking	open, group forming	mesh@palomararc.org
Operating Day	Tom Martin K6RCW	k6rcw@amsat.org
SANDARC Representative	John Walker AC7GK	ac7gkjohn@gmail.com
SANDARC Representative	Paul Williamson KB5MU	kb5mu@amsat.org
SANDARC Alternate	Michelle Thompson W5NYV	w5nyv@amsat.org
SD Microwave Group Liaison	Kerry Banke N6IZW	kbanke@sbcglobal.net





SAN DIEGO



HAMFEST 2016

DATE: OCTOBER 1, 2016



SPONSORED BY: LAKESIDE AMATEUR RADIO CLUB
VISIT US AT: WWW.LAKESIDEARC.ORG

**Like us on
Facebook!**



Time: 7AM—3PM

6AM “Old Radio Trade Show”

Old Radio Trade Show In parking lot !

Ham Fest Cost: \$5.00

Old Radio Trade Show “\$5.00 To Show”

Location:

Lakeside Rodeo Grounds

12584 Maplevue St. Lakeside CA.

Free Parking and Antenna Friendly.

***You are cordially invited to attend the
2nd Annual San Diego Hamfest 2016. We
plan on starting out the day with a Old
Radio Trade Show, Vendors,
Speaker Forums, and VE Testing.
So come on out and let's Ham it Up!***

**For the most up to date information
please visit: www.SDhamfest.org**

QLS/SDHAMFEST2016-ver1.0

What is Oceanside CERT?

Following a major disaster, first responders who provide fire and medical services will not be able to meet the demand for these services. Factors such as number of victims, communication failures, and road blockages will prevent people from accessing emergency services they have come to expect at a moment's notice through 911. People will have to rely on each other for help in order to meet their immediate lifesaving and life sustaining needs.

CERT (Community Emergency Response Team) is about readiness, people helping people, rescuer safety, and doing the greatest good for the greatest number. CERT is a positive and realistic approach to emergency and disaster situations where citizens will be initially on their own and their actions can make a difference. Through training, citizens can manage utilities and put out small fires; treat the three killers by opening airways, controlling bleeding, and treating for shock; provide basic medical aid; search for and rescue victims safely; and organize themselves and spontaneous volunteers to be effective.

In 2005, the Oceanside Fire Department started the community's CERT program. The program was initially funded by a County grant and supported with a small budget from the Fire Department. After much planning and work, the 1st class was delivered in the Fall of 2005 and it graduated about 25 citizens.

Since then, the program has grown to support a volunteer organization called Oceanside CERT which now has an elected board of directors to oversee and manage the group. Oceanside CERT recently obtained its 501.c3 non-profit tax status. The Fire Department serves as the program advisor to the group and as the sponsoring representative to the San Diego County CERT Council.

The program now has over 300 trained community members and City employees. About 125 of these dedicated volunteers are active members that continue to attend quarterly training sessions and participate in various community fairs and PR opportunities.

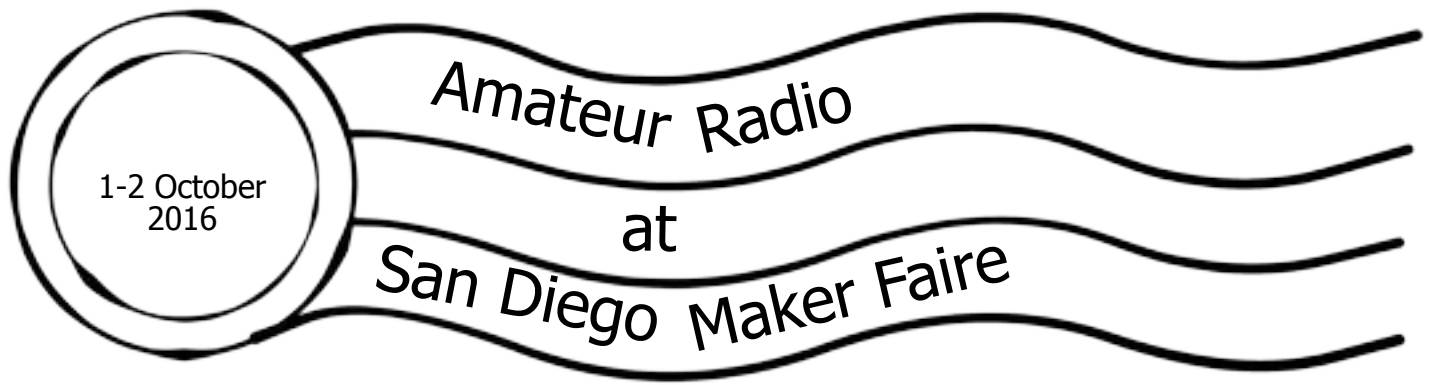
The Community of Oceanside has a population of about 180,000 and is approximately 42 square miles in size.

Oceanside CERT is authorized by the Oceanside Fire Department, the San Diego County Unified Disaster Council, and the San Diego County CERT Council.



OCEANSIDE CERT'S NEXT ACADEMY IS OCTOBER 6TH, 8TH, 13TH, & 15TH (THURS & SAT). ATTENDANCE ALL 4 DAYS IS MANDATORY FOR GRADUATION.

<http://www.oceansideCERT.org>



Maker Faire San Diego, a celebration of the Maker Movement and the do-it-yourself culture, returns to Balboa Park October 1-2. With air rockets, robots, towering sculptures, and a world of virtual reality, San Diegans are invited to be creative, engage some amazing technology, and get their hands dirty.

Early bird tickets for Maker Faire San Diego are on-sale now! Adult prices start at \$15. Children prices start at \$10. Admission includes entry to participating venues. To purchase tickets on the newly redesigned website, visit www.sdmakerfaire.org.

The Balboa Park Cultural Partnership and San Diego Makers Guild will partner with the City of San Diego to put on the event showcasing innovators and creators. Part high-tech science fair, part-county fair, part something entirely new, Maker Faire is an all-ages gathering of tech enthusiasts, engineers, artists, scientists, cosplayers, and more. Makers will be sharing, showing, and making awe-inspiring creations that are practical, built for fun, or constructed just to push the limits of imagination and technology. All of these makers come to Maker Faire to show what they have created to a community that fearlessly celebrates innovation, creativity, and learning-through-doing.

Over 10 institutions in Balboa Park will be participating in this year's Maker Faire San Diego:

- Japanese Friendship Garden
- Museum of Photographic Arts
- Reuben H. Fleet Science Center
- San Diego Air & Space Museum
- San Diego Automotive Museum
- San Diego Hall of Champions
- San Diego History Center
- San Diego Model Railroad Museum
- San Diego Museum of Man
- San Diego Natural History Museum
- The Old Globe

WHAT IS MAKER FAIRE:

Maker Faire is an award winning, family friendly event celebrating technology, education, science, arts, crafts, engineering, food, sustainability, and more. Maker Faire has become part of pop-culture, a place for experiential marketing, debuting new technologies and inventions, and celebrating geekdom. Maker Media produces two annual flagship Maker Faires, partners with museums to produce Featured Maker Faires, and works with communities to license Mini Maker Faires around the world.

MAKER FAIRE SAN DIEGO:

Maker Faire San Diego is a festival of invention, creativity and resourcefulness, and a celebration of the Maker Movement and Do-It-Yourself Culture in the San Diego Region. Unique from other Maker Faires, MFSD will incorporate all of Balboa Park in what is being called an "outside-in" model to include Maker exhibitions within the museums as well as throughout the Balboa Park.

HISTORY OF MAKER FAIRE:

The first Maker Faire launched in May 2006 in the San Francisco Bay Area and was quickly followed by Faires in Austin, Detroit and New York City, as well as others around the world. Technology has

lowered the barriers to becoming a Maker and this has launched the Maker Movement, which fuels Maker Faire. Maker Faire was designed to be forward-looking, showcasing Makers who are exploring new forms and new technologies. But it is not just for exhibiting what is new in technical fields - Maker Faire features innovation and experimentation across the spectrum of science, engineering, art, performance, and craft.

WEBSITE: <http://sdmakerfaire.org/>

FACEBOOK: <https://www.facebook.com/SDMakerFaire>

TWITTER: <https://twitter.com/SDMakerFaire>

INSTAGRAM: <https://instagram.com/sdmakerfaire/>

ABOUT SAN DIEGO MAKERS GUILD:

The San Diego Makers Guild is a nonprofit that is committed to fostering the maker community and to promoting, showcasing, and encouraging adoption of making by individuals and public and private institutions, with the goal of advancing education, innovation, commerce and lifelong learning. Our vision is to help develop San Diego into a nationally known maker city. Learn more at www.SDMakersGuild.org.



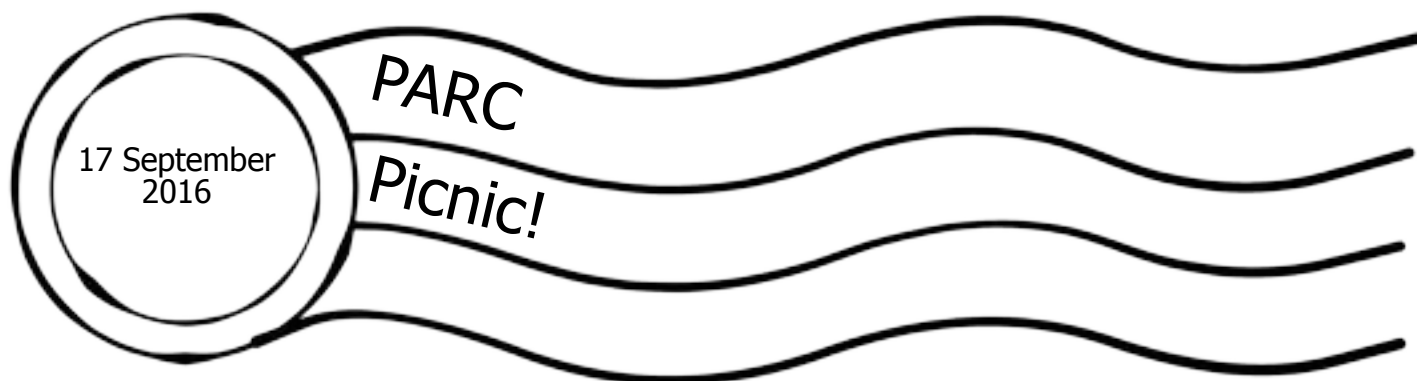
So where does amateur radio fit into to Maker Faire? Plenty of places! One of the most recognizable amateur radio installations has been Not Your Grandfather's Ham Radio. Members of the San Bernardino Microwave Society have anchored this interactive, engaging exhibit for the past several years.

San Diego Microwave Group fielded an excellent interactive demonstration with 10GHz transmitter hunting at the 2015 San Diego Maker Faire. Amateur radio demonstrations by PARC members were an appreciated attraction at the 2013 San Diego Mini Maker Faire.

For 2016, San Diego Microwave Group has applied for space at San Diego Maker Fair. Contact Kerry Banke N6IZW at kbanke@sbcglobal.net in order to help demonstrate amateur radio to as many of the the 15,000 people expected at Maker Faire this year!

Participants at Maker Faire are interested in building, learning, and doing things with technology. The spirit is positive and can-do. The crowd is young and dynamic. The event is a full two days. Setup and teardown times are more than generous for radio demonstrations. Amateur radio is a big part of the maker movement. Come help show it off this year!





Location: Same as last year, San Dieguito Park, Area 4
 Date 9/17/2016
 10:00 - afternoon
 Each vehicle \$3, disabled and senior discounts available.
 Talk in on 146.730

Each year PARC hosts an annual picnic for its members and every year it is great fun. Throughout the year, club members earn participation points for signing in at various club activities like the regular monthly meetings, repeater mountain work parties, operating days, and Field Day. This is the time for club members to redeem those participation points for tickets in the annual picnic prize drawing. A maximum of 20 tickets for each club member is allowed. Club members even get a point for attending the picnic. Multiple prizes will be awarded in various denominations.

The club will provide the main course. Members and their guests are asked to bring an item from the following list and some drinks. Last names beginning with: A-K: side dish or casserole, L-R: salad, vegetables, or fruit, S-Z: dessert.

There is lots of fun to be had at the picnic. Plans are in the works for games, T-hunting, radios, exercises, puzzles, and more.

Come and share some good food and great stories, try and find the hidden transmitter, and most importantly, come out and have a great time with other Hams from our club.

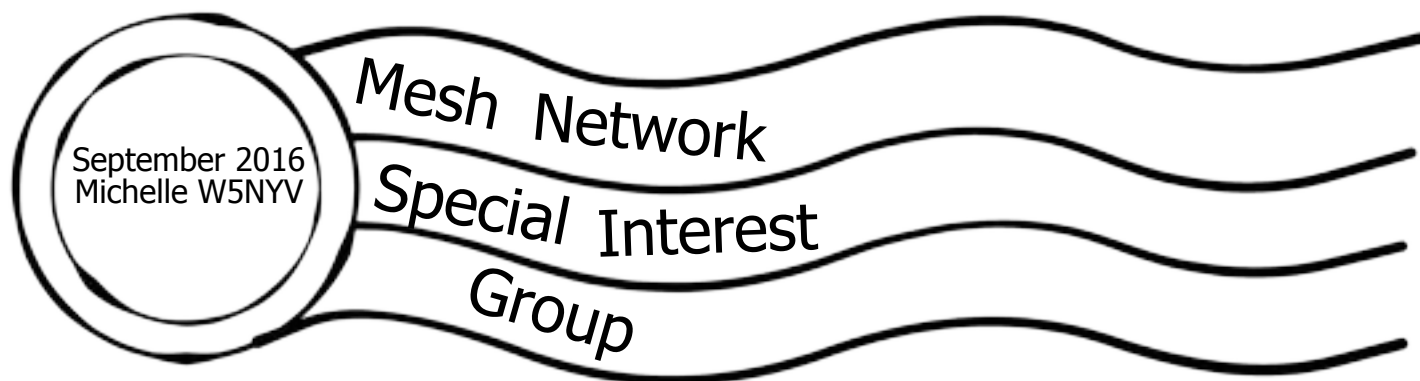
We look forward to seeing you there!

Food! Fun! Good company! Come "catch them all" in the park with fellow club members!

Top 10 reasons to come to the PARC Picnic:

- 10) A chance to bring your homebrew or qrp setups to the picnic and show off what you have been up to
- 9) Clown free zone! No facepainting, ever... we promise.
- 8) Super family friendly. Great playground with a slide and everything!
- 7) No requirement to drink from a park fountain. We will have PARC bottled water. Get it?
- 6) Beautiful shaded area with lush tropical landscaping
- 5) K2RP potentially judging boat anchors with a free random tube from the tube bank as first prize
- 4) A chance to NOT ask Mark Raptis how the repeaters are working because they are working great!
- 3) No dangerous rocket launches planned in our picnic area at that particular date and time
- 2) A chance to bring a non-member to a club event and see how great PARC is!
- 1) Life is short. Enjoy a great day with your PARC family and have a little bean dip.





Meetup:

7pm immediately before PARC's September membership meeting

Want to work on mesh networks? Want to learn more, but don't know where to start?

Well, we have a proposal for you! We would like a mesh network to connect Field Day computers for next year, in order to demonstrate mesh networking. If you have been looking for a simple way to get involved with mesh networking, this just might be it!

There is a small amount of funding available for the equipment required. Funding is made available through a targeted donation from a club member that would love to see "more mesh!"

While a mesh chair position opened up in August, you do not have to commit to being this chair. If you want to be, then the only additional duty is to recruit, support, and enable interested club members to get up to speed in mesh networking for amateur radio, and write a brief report each month for the newsletter on progress made in this area.

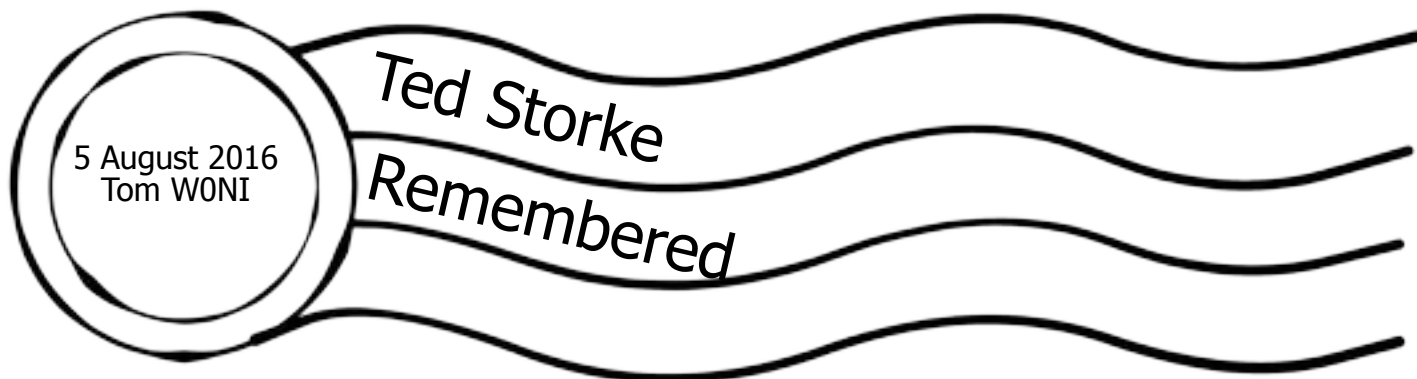
A mailing list has been created. There's seven or so people on it so far, and we invite additional club members to sign up. We anticipate meeting up immediately before PARC club meetings to touch base, ask questions, and do a quick show and tell. The first meetup is anticipated at the September PARC meeting.

The goal of the group is to enable experimentation and learning in a friendly and supportive environment. Mesh is an active area of research and development. There are well-known theoretical limits and functions that govern networked nodes in a mesh. The goal is to learn about them, and talk about how to address them. There are several well-known codebases and projects. We will learn about them too.

The first technical project is to demonstrate mesh at PARC 2017 Field Day by connecting up all the logging computers. This is an achievable and functional project that actually helps Field Day. If we decide that mesh is not the best solution for this problem, then we pick another goal. More ambitious projects will undoubtedly arise. The opportunity to do some coding definitely exists here, but if you are not confident at computer programming, this should not dissuade you from joining at all. There is much more to mesh than coding. Ideally, we leverage what linux has to offer already and focus on successfully integrating different components in ways that solve our problems or show off unexpected functionality.

Can we come up with a mesh game or contest, for instance? Can we come up with the definition of a needed tool or metric? Are there improvements that can be made to visualizations of mesh networks? Are there clever solutions to some of the current malfunctions in mesh networking? There's plenty to work on here, and lots of opportunities to try out new ideas!

If you are interested in signing up please write w5nyv@yahoo.com



Seventy Attend KD6AKT Lunch at Fuddruckers

Some 70 hams attended a tribute lunch to Ted Storke on August 5. Many PARC members stood to relate stories about Ted which were both heartfelt and humorous. Donna Storke and her sister were both in attendance and Donna expressed her gratitude to everyone. I'm sure that Ted had no idea the impact he had on people. But, after reading the many emails I've received and speaking with people at Fuddruckers, I can tell you he certainly did touch the hearts of many in our amateur radio community.

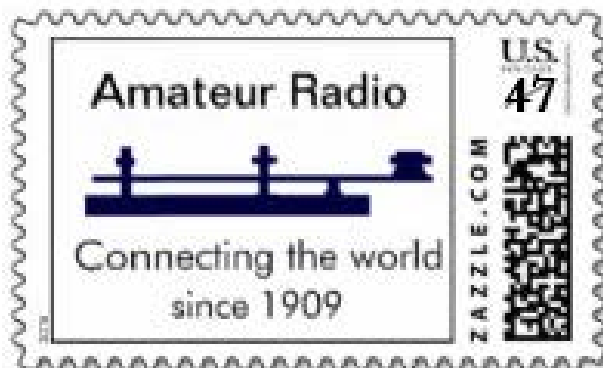
Tom Ellett - WONI



Photo taken by Donna Storke at Fuddruckers on Aug 5.

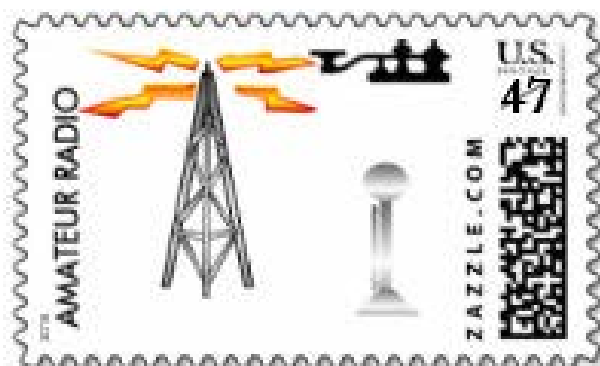
September
2016

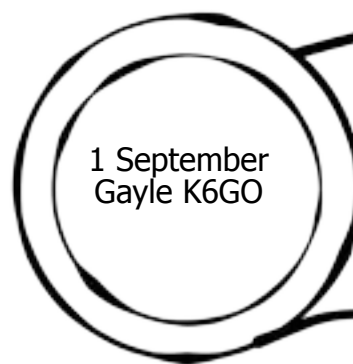
About our Theme!



Want to show your enthusiasm for ham radio with current postage stamps? Head over to www.zazzle.com and search for "amateur radio" or "ham radio" and order away!

You can even design your own stamp if you have a favorite radio or mode.





About our
Scholars!

SPONSORED BY PARC

PARC Student Scholarship

The Palomar Amateur Radio Club is creating at least one amateur radio scholarship for San Diego students to promote our goal of fostering our hobby and motivating young hams.

QST has three pages of the pictures of the recipients of the 2016 ARRL scholarships. Only two went to a California student! The survival of The Amateur Radio Service depends on us. If we do not act, who will succeed us? Our youth are our future.

To that end we are looking for funding sources especially corporate ones. We have two letters requesting scholarship funds from companies and corporations: one that is general, and one where we can use the name of the referring employee. Either one could be addressed to a specific person in the company.

Club members have indicated that we have members who work at companies that could be looking for a charitable tax contribution donation. If you work for one of these companies and you would like to come forward with a contact person, please contact us at board@palomararc.org with a possible contact person. We can send the letter we have created or if you are so inclined, you could personally deliver it.

Looking For High School Seniors

Calling for Applicants for the 2017 ARRL Foundation scholarship program. Applications will be accepted between midnight, October 1, 2016 and 11:59 PM Eastern Standard Time January 31, 2017. Transcripts must be received by Thursday, February 16, 2017.

The scholarship descriptions are all on line where you will find a brief summary of the terms and conditions required by the donors of the scholarships or established by the ARRL Foundation Board of Directors. (According to the ARRL Foundation, the brief descriptions may not include complete selection criteria and are subject to change without notice.)

There are 84 scholarships. (Some have insufficient funds and some are inactive.)

Only 20 have no geographical restrictions. 2 are for California students.

Please go to:

<http://www.arrl.org/the-arrrl-foundation>
then choose Scholarship Program from the left menu
<http://www.arrl.org/scholarship-program>
then you can review the details for each one
<http://www.arrl.org/scholarship-descriptions>

We hope to see your name and picture in QST this time next year!

UNDERSTANDING AMATEUR RADIO

\$2.50

AMATEUR
RADIO

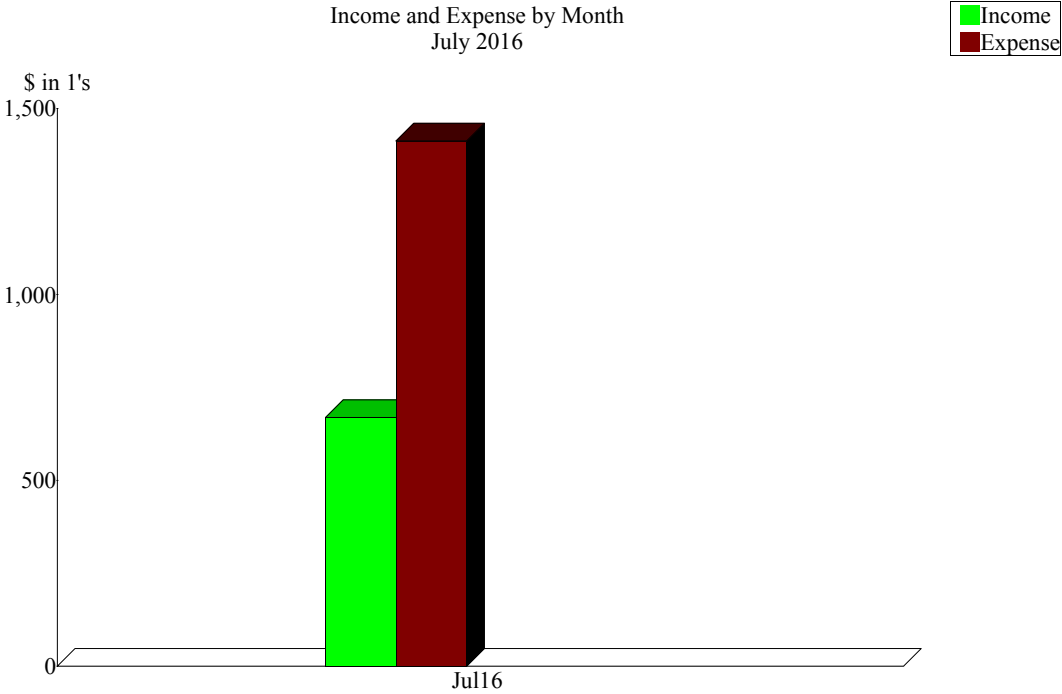
- PRINCIPLES
- CONSTRUCTION
- OPERATION



PUBLISHED BY THE AMERICAN RADIO RELAY LEAGUE

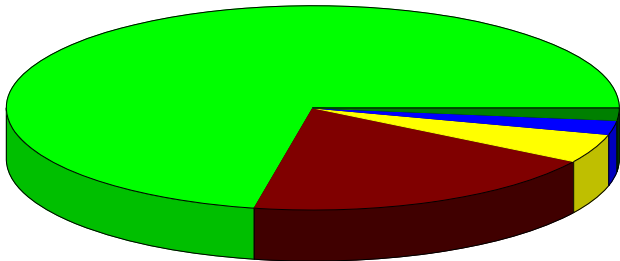
15 August
2016

Club
Financial
Update

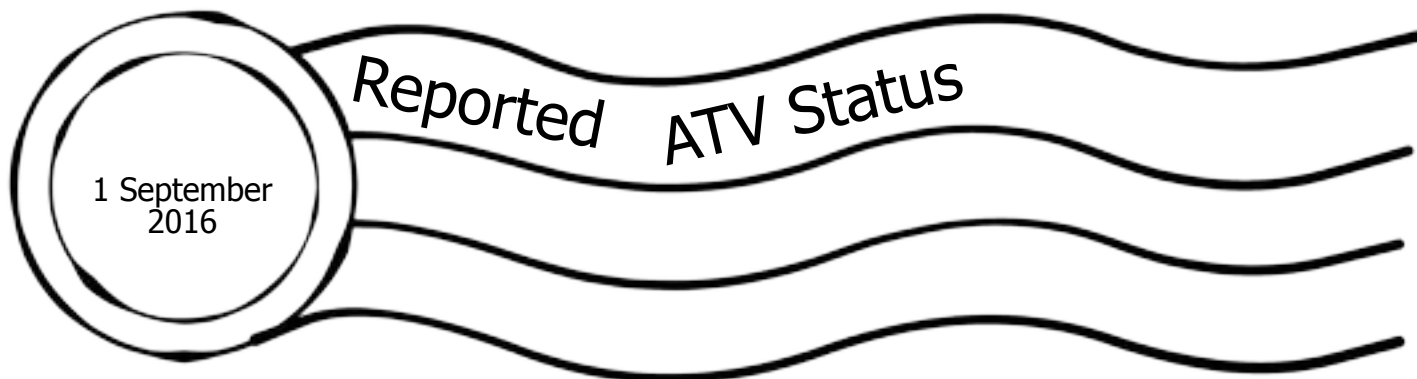


Expense Summary
July 2016

Rptr Equipment	\$ 1,017.59
Field Day Expns	274.00
Rptr Electric	66.29
Rptr Phone	32.19
Brochure	22.84
Total	\$1,412.91



By Account



ATV system renovations have begun!
Contact board@palomararc.org if you
want to be involved.

At a minimum, upgrades to include
DVB-T transmission, ATN linking,
and substantially reduced cost and
complexity to enjoy this mode.

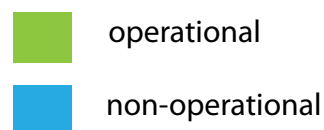
PARC
ATV
System

915 MHz WBFM in
5.8 MHz audio subcarrier

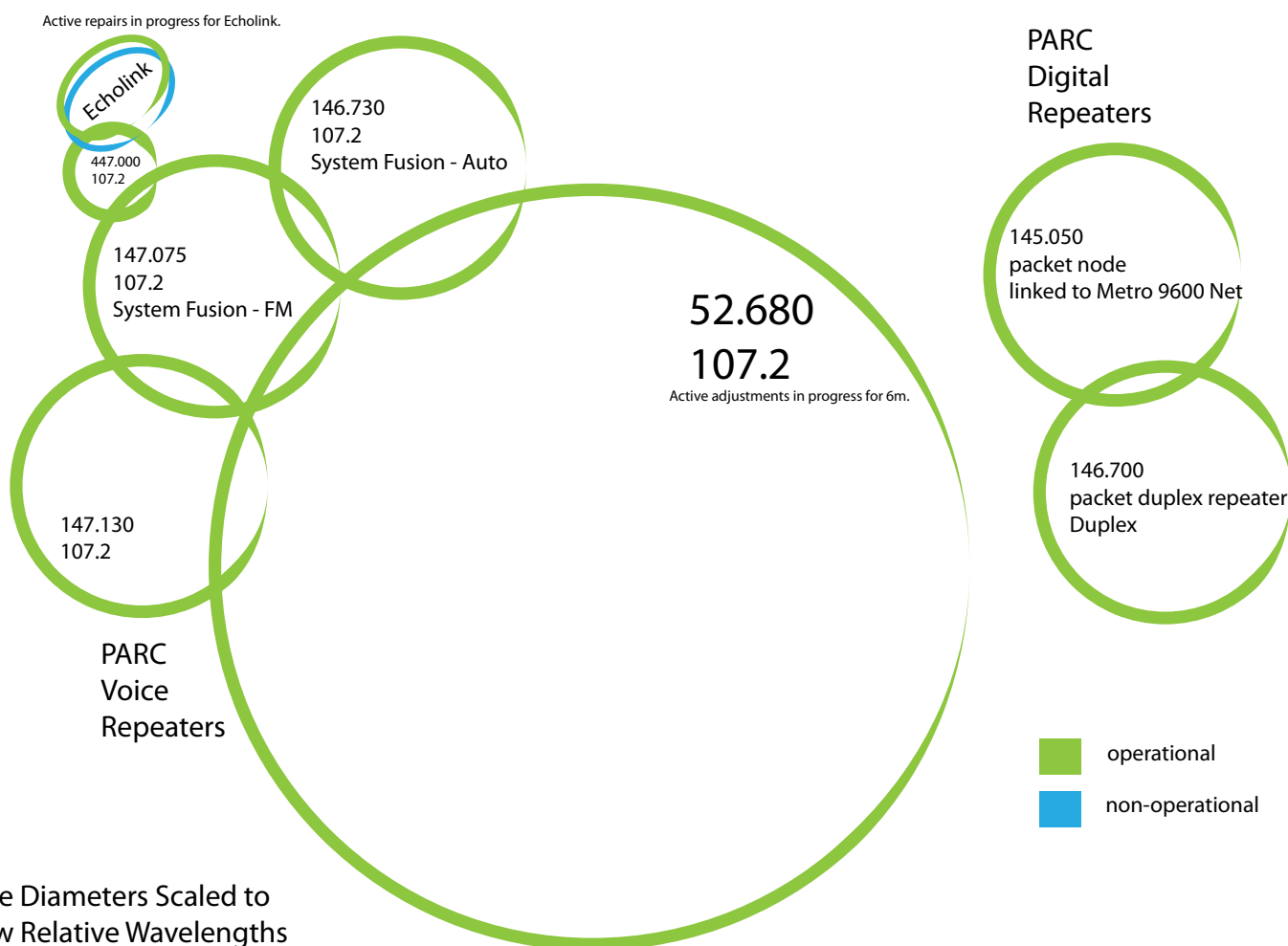
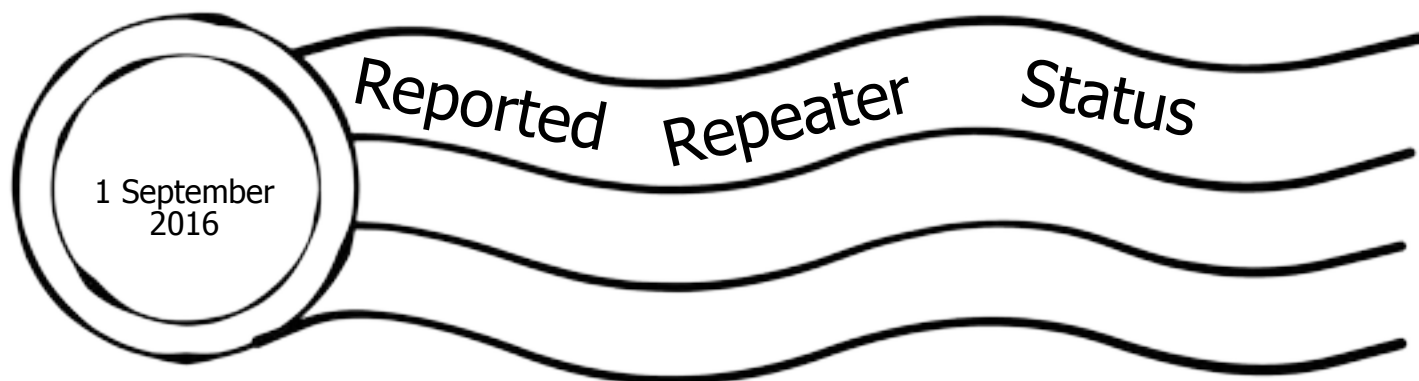
146.415
79.7
intercom

1241.25 MHz VSB out
NTSC standard

2441.5 MHz WBFM in
6.0 MHz audio subcarrier



Circle Diameters Scaled to
Show Relative Wavelengths
Between Equipment



The 6m repeater has been repaired! Some additional work remains to fully tune the repeater, but essential functionality has been restored after a 3+ year hiatus. Thank you to Mark KF6WTN, John WB6IQS, the PARC board of directors, and our 6m cavity donor.

Try it out and send your reports to board@palomararc.org

Repeater Site Report

31 July 2016
John WB6IQS

Went to the mountain today. Mark Raptis (KF6WTN) was unable to participate due to a work emergency. Several other hams from an affiliated 220 MHz club came up to do service work on their repeater system. We also found that their 2 meter 8 element yagi link antenna was defective and will need to be replaced or repaired.

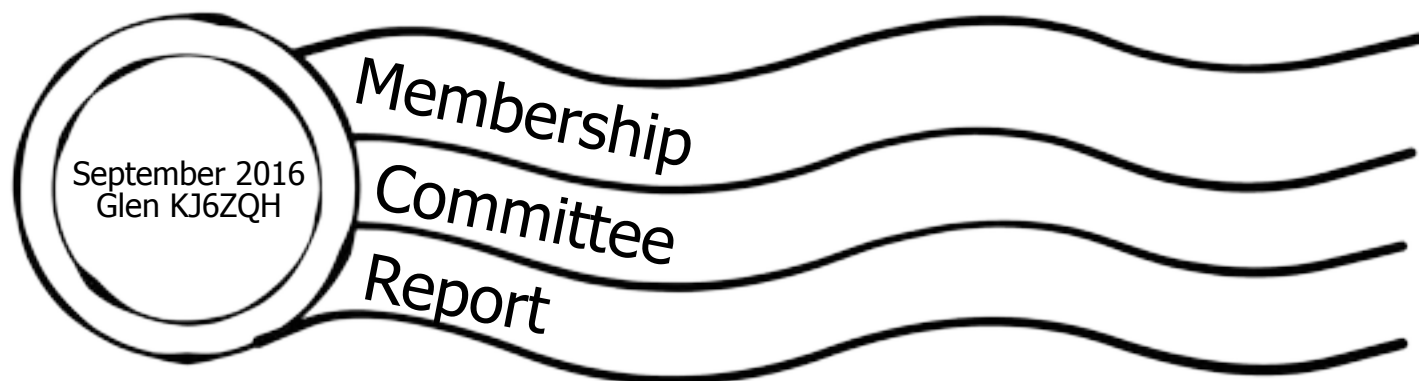
I installed two new 6 meter pass cavities. One in the TX line, (1 dB loops) and one in the RX (0.5 dB loops) line. I also added a GASFET RF preamplifier on the RX side just before the receiver's input. We picked up 6 dB of measured receiver sensitivity and did not lose any significant TX power in the TX path. Hopefully a win-win for everybody.

Further testing will be required.

Found out that as I suspected, we had a mini-RG-8X coax cable that ran from a splitter in the generator building over to the sunken building. It is being used for the packet repeater receiver (146.100 MHz).

John Kuivinen, WB6IQS
Vista, CA





From the Membership Table

You can check the status of your membership 24/7 at [Member List](#) (or go to the club's website and navigate to Join and click on "here" at the top of the page. Enter your call sign into the box and click the "Look up my membership status now" button.

To renew your membership or extend your membership, fill in the form on the Join page. Make sure you select the correct value from each of the drop-down menus (Type of Membership, How many years, I'm an ARRL Member, Newsletter option and License Class). If you want to receive an email when your membership is coming due for renewal, please make sure that I have a valid email address for you. To do that, please send an email to Membership@palomamararc.org.

Callsign	Membership Expires				
AB6O	04/04/16	KG6TFL	02/04/16	KK6UYP	07/01/16
AE6HF	06/27/16	KG6TTZ	11/20/15	N6ERD	03/04/16
AG6EK	03/04/16	KG6UTS	05/19/16	N6ISC	07/28/15
AI6KO	12/13/15	KG6VVN	01/07/16	N6IZW	08/23/16
K0CSD	09/02/16	KG6ZUW	06/28/15	N6MDU	07/18/16
K1NJH	06/03/16	KH6GK	03/23/16	N6MXD	05/26/16
K2RP	08/24/16	KI6AUP	06/29/16	N6NAU	07/28/15
K6DRH	09/30/15	KI6DBL	03/07/16	N6TBA	06/25/16
K6GOR	03/01/16	KI6KJG	04/01/16	N6XDX	08/01/16
K6ISS	10/03/15	KI6SBQ	01/08/16	NA6DC	04/04/16
K6JQE	08/04/16	KJ6KDM	09/03/15	NB0X	07/01/16
K6JXY	07/18/16	KJ6KGH	08/01/16	NE6AA	07/07/16
K6OT	02/04/16	KJ6KLJ	02/03/16	NE6O	09/01/16
K6RRP	08/28/16	KJ6QQD	05/05/16	NN6X	06/30/16
K6SC	02/13/16	KJ6YPR	08/06/15	NU6L	08/17/15
K6WJH	06/27/16	KJ6ZBQ	03/13/16	W6ACU	09/24/16
K7ELH	03/11/16	KK6CTF	07/31/15	W6ADF	03/18/16
KA6OYD	09/24/16	KK6DRA	05/16/16	W6HDG	08/07/16
KB6CPZ	07/28/15	KK6EED	09/05/16	W6JBR	07/05/16
KC6HUK	03/06/16	KK6GHF	03/04/16	W6KE	07/28/16
KC6UQH	07/28/16	KK6GO	06/04/16	W6OYJ	08/25/16
KC6YSO	11/05/15	KK6IJN	01/07/16	W6RLC	07/28/16
KD1BD	08/16/16	KK6JDM	02/09/16	W6XM	08/23/16
KD6AEB	09/25/15	KK6LJ	06/04/16	W6YOO	07/28/16
KD6YJB	07/28/16	KK6LNV	02/02/16	W9BOI	02/06/16
KE6NPL	06/11/16	KK6MTF	07/31/15	W9UVZ	08/07/16
KE6PHE	07/28/16	KK6MZP	06/28/15	WA6ALW	03/04/16
KE6ZLX	08/28/16	KK6NLS	08/16/16	WA6GYG	08/28/15
KF6SMB	08/28/16	KK6QOS	12/16/15	WB6UIR	11/05/15
KF7SJE	09/24/16	KK6RIP	02/09/16	WB8BHE	07/28/16
KG6MDQ	03/16/16	KK6RRW	03/21/16	WB9COY	07/03/15
KG6OMH	09/11/15	KK6RWK	02/14/16	WD6FZA	11/05/15
KG6QWR	05/09/16	KK6TNO	05/09/16	WN6K	09/04/16
KG6RLA	09/07/16	KK6TYQ	06/03/16	WQ6V	10/15/15
		KK6TYY	05/30/16	WX6AAA	08/07/16
		KK6UFP	05/24/16		



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Programmable Function Keys	4	0	0	0
Graphic Symbols On Keyboard	62	0	0	0
Displayable Characters	512	256	64	256
Microprocessor	6502	6502	TI990	6809
Accessible Machine Language	YES	YES	NO	YES
Upper/Lower Case Characters	YES	YES	NO	NO
Operates with all Peripherals (Disk, Printer and Modem)	YES	NO	YES	YES
Full Screen Editor	YES	YES	NO	NO
Microsoft Basic	Standard	N/A	N/A	\$ 99.00
Telephone Modem	\$109.95	\$399.95	\$450.00	\$154.95

*Manufacturer's suggested retail price Feb. 1, 1982. Includes BASIC cartridge required for programming.



Read the chart and see why COMPUTE! Magazine¹ calls the VIC-20 computer "an astounding machine for the price." Why BYTE² raves: "...the VIC-20 computer unit is unexcelled as a low-cost consumer computer." Why Popular Mechanics³ says "...for the price of around \$300, it's the only game in town that is more than just a game." And why ON COMPUTING INC.⁴ exclaims: "What is inside is an electronic marvel... if it sounds as if I'm in love with my new possession, I am."

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1 April '81 issue 2 May '81 issue 3 November '81 issue 4 Fall '81 issue



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World Scout Jamboree On the Air Friday to Sunday – October 14–16 & SDIC STEM Fair – Saturday October 15

- Cub and Boy Scouts of all ages please join us for the 59th annual World Scout Jamboree on the Air, Friday to Sunday - October 14-16, and the San Diego-Imperial Council STEM Fair, Saturday October 15, 8:00 AM to 4:30 PM at Camp Balboa
- Cool STEM activities include:
 - Talking to Scouts all over the world on amateur radio
 - Tiger Cub *Sky is the Limit* Adventure workshop presented by the San Diego Astronomy Association
 - Cub Scout Nova *Out of this World* award workshop presented by the San Diego Astronomy Association
 - Digital Technology Merit Badge workshop presented by Securing our eCity Foundation
 - Radio Merit Badge workshop presented by the SDIC Radio Scouting Committee
 - Robotics Merit Badge workshop presented by Southwest Robotics in Science Education
 - Cub and Boy Scout Cyber Chip workshops presented by Securing our eCity Foundation
 - Robotics, amateur radio, and other cool tech demonstrations
- **Unit overnight camping available Friday and Saturday, including Jamboree On the Air activities Friday evening and Sunday morning**
- Other specifics:
 - Registration available at <http://sdicbsa.org/ACS/>
 - Cost: \$10 per Scout (additional \$30 fee for Robotics Merit Badge)
 - Scouts should bring lunch, beverages, and snacks for the day Saturday
 - See next page for award pre-requisite requirements
 - Units that participate as a group may register and pay for overnight camping directly with the Council Camping Department, and must bring all food and camping gear





World Scout Jamboree On the Air & STEM Fair – Saturday October 15

- Scouts who register for the below-listed awards must:
 - Complete the listed award requirements before the event (i.e. pre-requisites), or complete the requirements after the event to finish earning the award
 - Print and bring the award workbook with them as indicated below
 - Bring a Troop-signed Blue Card for a Merit Badge
- Awards:
 - Tiger Cub *Sky is the Limit* Adventure: Pre-requisite requirement no. 1
 - Cub Scout *Nova Out of This World*: Pre-requisite requirement no. 2
 - Radio Merit Badge: Pre-requisite requirements no. 1, 2, and 8; workbook: <http://meritbadge.org/wiki/images/1/10/Radio.pdf>
 - Robotics Merit Badge: Pre-requisite requirements no. 1, 2, 3, and 7; workbook: <http://meritbadge.org/wiki/images/7/7a/Robotics.pdf>
 - Digital Technology Merit Badge: Pre-requisite requirements no. 5(b) and 6; workbook: http://meritbadge.org/wiki/images/d/d2/Digital_Technology.pdf
 - Cub Scout Cyber Chip: No pre-requisites
 - Boy Scout Grades 6 to 8 Cyber Chip: Pre-requisite requirements no. 2 and 5; workbook: http://meritbadge.org/wiki/images/b/b4/Boy_Scout_Cyber_Chip.pdf
 - Boy Scout Grades 9 to 12 Cyber Chip: Pre-requisite requirements no. 2, 3, and 6; workbook: http://meritbadge.org/wiki/images/b/b4/Boy_Scout_Cyber_Chip.pdf



Boy Scout Club Call WB6BSA Has New Trustee

Congratulations to PARC member Michael Palugod who stepped up to be the trustee of WB6BSA! We have many PARC members that support both Boy and Girl Scouting.

If you want to become more involved with Radio Scouting, then we can help put you in touch with the right people. Let us know at board@palomararc.org.



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Z-3 Crystal (specify frequency). Net \$3.87.
Batteries (2-M30 "B", 1-2F "A"). Net \$4.76.

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Model 3030-12.
For 12 VDC.
Net \$52.50.



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624V5	6 @ 46 A.	600 @ 240 MA	\$2.32
450B5	12 @ 13 1/2 A.	400 @ 250 MA	\$1.46
520B5	12 @ 14 A.	500 @ 200 MA	\$2.19

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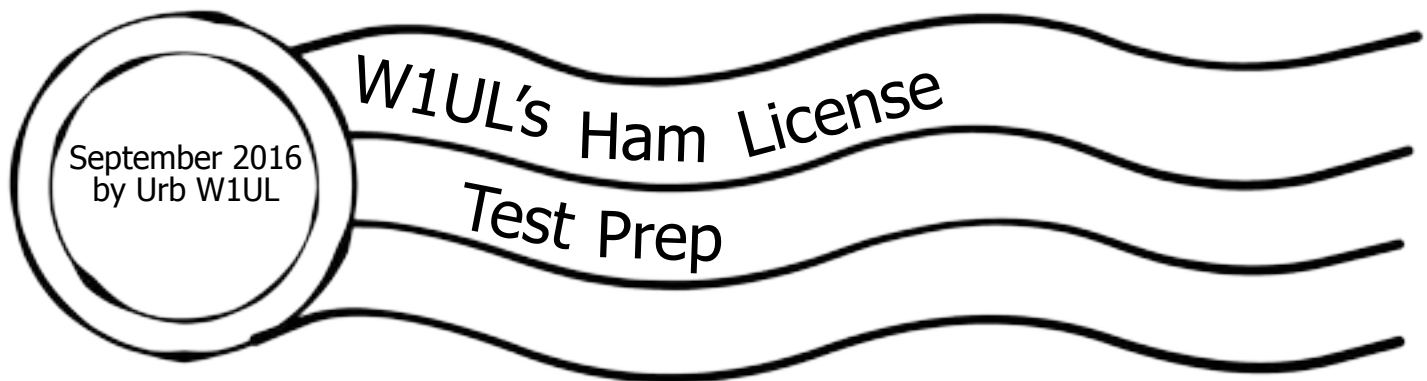
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Alternative Study Strategies

Prologue

Since the inception of the W1UL Ham-Cram.com website, when there was only preparation for the Technician license, I have strongly advocated studying one subelement at a time. I also strongly encouraged the candidate take the subelement's practice exam and if the candidate didn't get at least 85% correct I recommended repeating the process until attaining a test score of at least 85%. (Each license class has 10 subelements which are basically categories.) Despite many years of college level teaching I committed a rookie educator's mistake, which is assuming all people learn the same way I do. I like my information served in small packages with frequent practice test to reinforce my learning. The following is a true story and points out the fallacy of my educational assumption.

An experience with a good friend drove home the point that different people learn in different ways. This critique reviews different study modalities when preparing for an amateur license examination.

My Friend Jim

A good friend of mine, I'll call him Jim, passed his Advance license 34 years ago after three unsuccessful tries. He is retired military and is an avid DXer and uses CW exclusively. He takes pride in his lack of technological sophistication. He doesn't own a computer, cell phone or a GPS. I printed the entire Extra question pool for him in the format used on the ham cram website, approximately 300 questions, using the following style:

1. Question number one.
Correct answer for question one.
2. Question number two.
Correct answer for question two and so on.

After Jim had been studying the print out for a couple of week I offered to bring my computer to his house so he could take a practice exam. "No way," he exclaimed, "I don't want to see an incorrect answer until I take the actual test!" I suggested he intersperse practice tests with his studying but he adamantly refused.

All's well that ends well. There were three candidates taking the Extra exam at Jim's VE session. He was the first to finish and had only one wrong answer the best of the three!

Is this method for everyone? I honestly don't know. You might want to try it and see if it works for you. A compromise might be to study the questions and correct answer until a day or two before the VE test. Then take a practice exam for the entire test (see below) so you get feedback on what you

don't know.

Let's take a look at some other learning methods

Studying Using Multiple, or all, Subelements

Several candidates have commented on their inability to use multiple subelements to create a study session or practice test session and have all the available questions displayed. Mistake on my part, it's possible to do but my explanation is vague.

Here is how to create a study or practice test session using multiple, or all, subelements.

Go to ham-cram.com and select either the Technician, General or Extra study session. We'll use the General study session for this example. Figure One show the top of the General study session page.

This General question pool is effective on July 1, 2015 and expires on June 30, 2019			
35	Number of question for this session. Enter "0" for all available subelement(s) questions. 35 is the numbe of questions on the VE test.		
Check to Include	Sub-element	Subelement Title	Question Count
<input type="checkbox"/>	All	All questions in the pool	203

Figure One

The text box in the upper left corner contains the number of questions on the actual test which is 35 for Technician and General exam and 50 for the Extra exam. The first entry in the "Question Count" column is the total number of questions in the ham crams pool for that specific class of license. To select a listing for all questions in the specified ham cram pool enter zero in the text box in the upper left corner. Next, check the first check box in the left most column. Lastly click on the button at the bottom of the page labeled, "Select one or more Subelements for Study."

This produces a listing of each question, followed by only the correct answer, for the entire question pool. Print the output so you have a complete listing of the entire question pool for your target license class. Take it with you and you can study when you get a few spare minutes.

We learn from using our senses: What we see, hear and touch. We won't do much touching using the ham cram site but we could if use material from the Gordon West Radio School. Check it out at:

<http://www.gordonwestradioschool.com>

When you are using the ham cram study mode (Only questions likely to be on the VE test and only correct answers) read the questions and answers out loud so you are seeing the questions and answers as well as hearing them. Ideally, do the prep with a partner and have one person read the questions and the other read the answers. On the next pass have the person who previously read the questions read the answers and the person who previous read the answers read the questions.

Make an Audio Recording of a Study Session

When reading the questions and answers, as detailed above, record them so you can play them back when on a long drive – this is called a commute in California. If you make a recording of the entire question pool and are willing to share it with other people, email a copy and I'll put it on the ham-cram.com site with full attribution to you.

Flash Cards

If you learn well using flash cards you can easily make your own. Print out the full question pool for your target license as described above. Get several pack of 3 X 5 file cards and cut the print out into questions and answers. Tape or glue the question on one side of the card and the answer on the reverse side.

When studying with flash cards alternate between reading the questions, out loud, first and then read the answers, out loud. Next, read the questions and before reading the answer try and remember the answer. Finally, read the answer and see if you can remember the question.

When you pass your target test – notice I said when, not if – make the cards available to other members of the Palomar ARC.

What Floats Your Boat

If you have come up with any other creative ways of utilizing the ham-cram.com data base please let me know.

Anecdotes

All of the July anecdotes are based upon my personal knowledge. There were likely many more I didn't know about. July was an interesting month. My 9 year grandson Charlie K3CPV passed his Technician after about a week of studying. His brother Will W3WKV aced the Technician test when 11 years old and also aced the General when he was 12. Charlie is to my knowledge the youngest person to pass the Technician test using the W1UL ham cram method.

Also in July, a 78 year old great grandmother, I dare not use her name or call, aced the Technician. She became the oldest person, to my knowledge, to pass a test using the ham cram method.

I'm aware of three people who passed both the Technician and General exams at the same session. BTW, if you pass an exam at a VE session, you can take the next higher license with no additional fee. Again, to my knowledge there are now 18 people who passed both the Technician and General at the same VE session and only three who attempted both and didn't pass the General portion of the duet. All three passed the General at the next VE session. It's distinctly possible there may be many others that I don't know about.

I helped start an amateur radio club, W2SBP, at my high school alma mater. We had nine student members who took their Technician and seven passed. Additionally of the seven who passed three also passed their General. All of them only had three weeks to prep. A faculty member, Jon KD2LEN, went from no license to Extra in two weeks.

If you have some free time, consider working with a school radio club. It's very rewarding and we desperately need young people in the hobby. When you walk into the typical ham radio club meeting from the back, it looks like a box of Q-Tips.

I would really be interested in your personal experiences with ham-cram.com. We just recently pass 40K preparation sessions. Thanks to all of you who helped make that possible.

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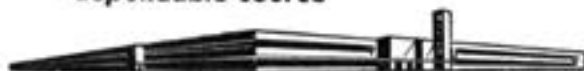
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Hiking + Radio = SOTA

Introduction

For me, the SOTA, Summits on the Air, program, is either an excuse to go hike or to play radio. I'm never really quite sure which. From SOTA, I've learned some interesting and sometimes flavorful vocabulary from the UK version of the English language. And I've learned about mountaineering gear that isn't in mainstream use in the USA. Have you ever heard of a bothy bag?

The Summits on the Air program originated in the UK in 2002. It is “an award scheme for radio amateurs and shortwave listeners that encourages portable operation in mountainous areas.”

Activators are the ones on the hilltops (and sometimes in the wind, snow, and rain). Chasers are the ones who make contacts with the activators. SOTA has an online database where contacts can be recorded and points kept track of for chasing and activating awards.

<http://www.sota.org.uk/> - main website

<http://www.sotadata.org.uk> – the database

The SOTA database contains lists of summits for different associations from around the world. (Examples: W6, GW, OH, HL, VK2.) Currently there are 109 associations and more in the works. An association manager (and often a team of volunteers) puts together the summit lists for the association and publishes an ARM, or association reference manual, with the summit lists and special rules and useful information for the association.

<http://www.sota.org.uk/Associations> – list of the associations

<http://www.sota.org.uk/Association/W6> – W6 association ARM and summit information

The W6 association went live on July 1, 2009. Currently this association has 16 regions and 4284 qualifying summits. About 500 were added this past spring during an overhaul of the ARM. Summits must have a prominence of 150 meters (492 feet) in W6 to be listed. San Diego County, the area of my interest, contains summits from 5 of these regions. As DXCC provides an excuse to learn some geography, reading the W6 ARM will provide an excuse to learn some geology.

<http://www.sota.org.uk/ARMViewer/W6> – W6 ARM

<http://www.peaklist.org/CAMtnatlas/CAMtnatlas.htm> – California Mountain Atlas

The summits are given reference numbers and points values in the ARM.

A Few San Diego Summit Examples

Reference	Name	Points
W6/CT-020	Palomar Mtn.	6
W6/SC-115	El Cajon Mtn.	2

Reference	Name	Points
W6/SC-214	Iron Mtn.	2
W6/CC-014	Cuyamaca Peak	6
W6/SC-338	Black Mtn.	1
W6/SC-352	Mt. Helix	1

<http://www.sota.org.uk/Summit/W6/CT-020> – Palomar Mtn summit information page
<http://www.sota.org.uk/Summit/W6/SC-214> – Iron Mountain summit information page
<http://www.sota.org.uk/Summit/W6/SC-338> – Black Mountain summit information page
<http://www.sota.org.uk/Summit/W6/SC-029> – Stonewall Peak summit information page

Because SD county is covered by numerous regions, one of the best tools to plan trips is the mapping page and in particular the range feature.

<http://www.sotamaps.org/> - SOTA mapping
<http://www.sotamaps.org/range.php> – range map – enter your zip code and distance of interest

A great San Diego hiking reference is *Afoot & Afield San Diego County: A comprehensive hiking guide*, by Jerry Schad. I cross referenced the trip descriptions with summits in San Diego county and shared it online.

<https://github.com/drewarnett/sd-sota-afoot-xref>

Activating!

In a nutshell, to activate a summit, you get to the activation zone (82 vertical feet or 25 meters of the summit in the W6 association) under your own power and using portable gear and power. To get activator points, you need to make at least 4 QSOs exchanging callsigns and reports. (Summit reference isn't mandatory, but is encouraged.) Points are awarded to you based on the summit and possibly a seasonal bonus. Seasonal bonuses, defined in the ARM, are for things like desert peaks in the summer and the high sierra in the winter.

How does it go? I won't go into the getting there part. If you're not familiar with getting to these summits, there are plenty of resources to help you learn the San Diego county back country and how to travel there safely. The radio part? Amazing! My first time out was a shakedown cruise up Black Mountain in the PQ neighborhood. I worked 15 and 20 meters CW. Once I was spotted, the pileup was something else! The chasers were courteous and polite which probably was helpful for my rusty CW skills. The best DX that day was Nova Scotia which was cool.

Activation gear

As you would imagine, gear runs the gamut. FT-817s and KX3s are popular. And, I'm sure the KX2 now. Some carry FT-857 or FT-897 class rigs and sometimes large batteries. KD1JV's ATS series of rigs and the successor MTR design) are popular. Some have pruned down their entire setup to very light weight. For example, one ham who carries his rig while trail running! Some

activate VHF FM only with an HT with a rubber duck or maybe a portable colinear or yagi for gain. Some operate microwave. And many are on HF both phone and CW.

I've started out using a 20' telescoping fiberglass fishing pole with an ATS3B (designed to fit in an Altoids tin), band modules for the ATS3B, 8xAA batteries, surplus straight key, head phones, BNC patch cable, ZM-2 antenna tuner, and wire for end fed antennas on wrapped on kite winders. The whole thing goes in a tupperware container in a daypack with the fishing pole. The ultralight hikers can see lots of potential to shave the weight of this gear. Even so, I usually carry more weight in water than radio gear in the summer time.

More recently, I've swapped out the ATS3B and ZM-2 for a KX3. Instead of the straight key, I've been using a homebrew set of NB6M's excellent single lever paddle design.

<http://www.amqrp.org/projects/paddle/NB6M%20Paddles.html> – awesome HB paddle

Self spotting is frequently used by activators. In other parts of the hobby this may be forbidden, but it's OK if you want to do this in SOTA. There are a variety of ways to do this: sotawatch.org, custom smartphone apps, RBN, APRS2SOTA, and the SMS gateway to name a few.

Awards for different levels of achievement are available.

Chasing!

In a nutshell, to chase a summit, you work the activator from the creature comforts of your home. Points are awarded to you based on the summit.

After a number of activations and a now developed sense of appreciations for the chasers, I decided that I should give a little back. I was a bit surprised. I thought with the spots that it would be easy to chase. Not so. The ops would move from band to band, or be offline for a bit changing the antenna setup, or have to “QRT STORM NR NOW”!

You can try tuning in during an activation and see what it sounds like. Spots on sotawatch.org would be the best bet. A variety of frequencies are used, and common practices vary depending on what part of the world the operator is in. In North America, it's common to operate in the neighborhood of QRP or HFPACK calling frequencies. On FM, simplex frequencies are used, so definitely look for 146.52. (146.55 and particularly 146.58 have been popular in SoCal for SOTA.) Repeater contacts aren't allowed, but some of use SD SOTA activators may jump on a repeater to solicit contacts!

Awards for different levels of achievement are available.

S2S

Summit-to-summit, or S2S, is the holy grail of SOTA. In this case, you are both activating and chasing! It is considered good form if you are a chaser to standby for S2S contacts.

SD SOTA

San Diego county summits have seen activations for a while now. I finally started activating after following the program for a while. A mailing list was formed for SD SOTA. It quickly evolved into a SoCal SOTA list. Currently there are 40 subscribers. I highly recommend this forum; there are some real experts on SoCal hiking.

<https://groups.google.com/d/forum/socalsota> – socalsota mailing list

More activators in SD & SoCal would be very welcome. Chasers from across the country and even DX chasers would be grateful for the chance to garner more points. Posting an activation alert to sotawatch.org is very helpful, too.

Due to the large number of regions, the best bet for finding eligible summits is to use the mapping feature found at sotawatch.org and use the **RANGE** tab to find *all* of the summits near some location in SD.

SD & SoCal chasers would be even more welcome. N0PCL worked the SD South Park neighborhood with an HT from Cucamonga Peak. VHF FM seems fairly active from the Angeles area but seems less common down here. Maybe that will change? Sure, activators could jump on a repeater and drum up folks to QSY to simplex for a valid (non-repeater) SOTA contact. And, maybe that would be the best mode of operation. But, from lower locations, we are able to drum up a fair amount of VHF FM simplex during the VHF contests. Is it possible to do so with SOTA?

Activation alerts and spots found on sotawatch.org are very helpful for chasing.

<http://sotawatch.org/> - sotawatch

<http://sotawatch.org/alerts.php> – alerts to upcoming activations

<http://sotawatch.org/spots.php> – spots

If you have any questions about SOTA, chasing, activating, resources for hiking in San Diego, please contact me, or the SoCal list or the NA SOTA resources or the main SOTA resources.

Look for activation reports and videos and photos and many other types of resources for SOTA online.

<http://groups.yahoo.com/neo/groups/nasota/info> – North America SOTA mailing list

<http://na-sota.org/> - NA SOTA page

<https://w6-sota.org/> - W6 SOTA page

About the author

Drew Arnett KB9FKO

After discovering radio as a kid, Drew earned his EE degree and amateur radio license at the University of Illinois. Recently, after learning about the SOTA program, Drew co-founded a mailing list that evolved into the socalsota mailing list. He hopes to increase amateur radio activity level by encouraging others to get involved in all aspects of the hobby. a.arnett@ieee.org

Special thanks to the other members of the SD SOTA list for ideas and editing and contributing to this article: N0PCL, KH2TJ, KG6AOV, and AG6LG. And thanks to all who participate in SOTA.

CQ
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W3HWZ



M. R. BRIGGS, A HAM OPERATOR FOR 35 YEARS, IS MANAGER OF MISSILE
GROUND CONTROL ENGINEERING, WESTINGHOUSE ELECTRONICS DIVISION

ALL ELECTRONIC ENGINEERS WITH A DESIRE TO CREATE!

The building of a ham station is an outlet for some of our creativeness. In the 35 years I've been a ham operator, I've found a lot of satisfaction in my hobby: but nothing gives me more creative pleasure than my job.

At the Westinghouse Electronics Division, creativeness is encouraged. Important, too, is the fact that the work is so vital! We're working on advanced development projects that are both interesting and challenging! For the expansion of these projects we are looking for electronic engineers experienced in radar and Missile Guidance Systems.

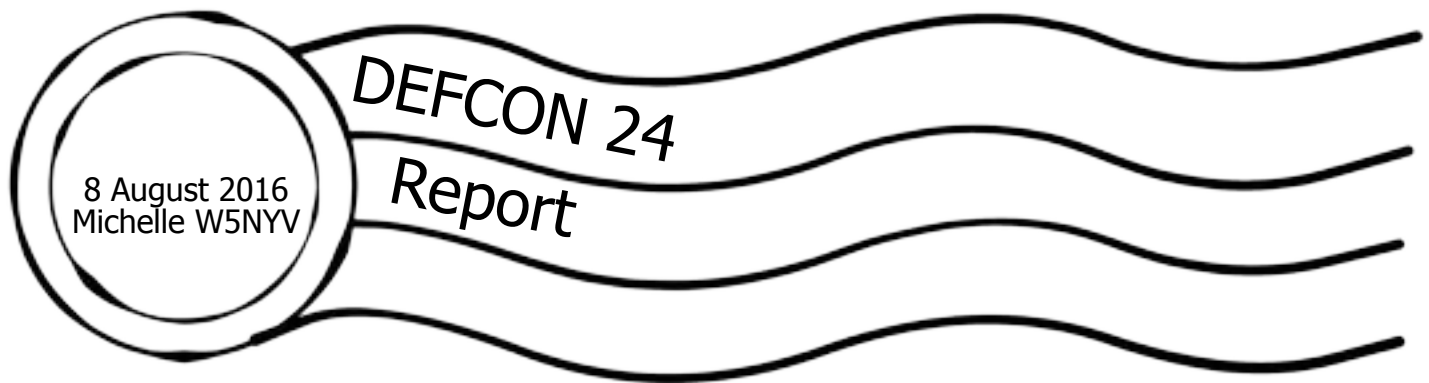
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YOU CAN BE **SURE**...IF IT'S
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Awesome photo of us presenting credit due to John GI7UGV @radwire on twitter.

Our talk at DEFCON Wireless Village was very well attended and very well received. Skunkworks, Abraxas3d, and TBD all represented Phase 4 on Saturday afternoon. We got the first speaking slot after the shock collar equipped SDR dogfight contest. If the speaker names for this talk sound unfamiliar, it's because they are our not-so-secret hacker handles. Skunkworks is Paul KB5MU. I'm Abraxas3d, and TBD is Steve Conklin AI4QR. That handle literally is TBD because he hasn't told me his secret hacker handle yet. It's obviously highly classified. We talked fast about Phase 4 in our 20 minute time slot. The slides are in our github repository. <https://github.com/phase4ground>

We emphasized the experimental possibilities and the fact that we are solving lots of small problems and kicking them out to the amateur radio community along the way. TBD announced the Usersynchronous web app, which was a big highlight for me. Steve has lead a team to create a log visualization web app for amateur radio contants over Phase 4 (or any other set of QSOs). The app takes a standard logging format and produces beatiful visual results. Other topics during the talk were authentication and authorization, generic stream encapsulation, and why a dual-band feed is both challenging and useful for our particular frequency scheme.

DEFCON Wireless Village is where SDR enthusiasts and signal freaks hang out. It has its own speaker track, its own competitions, and its own social events. In any other town, it would be a convention in its own right. It's also the go-to place for gearing up for the very successful DEFCON ham radio exam session. Seeing hardcore hackers that almost all have a problem with authority get probably the most old school toe-the-line type of license from the government - the FCC no less! - is thoroughly entertaining. The ham radio exam sessions at DEFCON24, and yes it's been going on for 24 years, were sponsored by hackers from area code 408.

Shorthand for these sorts of groups is the letters DC followed by the area code. For example, DC408. Identifying with your area code and forming a group based on your area code dates back from when the phone system was a primary target of many hackers or phreakers, spelled with a ph from the word phone. DEFCON supports the organization of groups based on area code, and many of these groups then sponsor or run events at DEFCON. If you want to find out if you have a defcon group near you, then check out the link in the notes.

<https://defcongroups.org/>

The ham radio exam results for this year: 95 Technicians 22 Generals and 11 Amateur Extras.

"This year's DEF CON badge was electronic, and there was much celebrating. This year's DEF CON badge had an x86 processor, and there was much confusion!"

DEFCON has had electronic hackable badges for many years and DEFCON 24 was no exception. In some years, the badge is part of a hacking challenge or competition. I've done this at least twice. For DEFCON 17, we grafted on a Muller tube, read the resulting radioactive measurements as a random number generator, and used that to create a secure link to another badge. The writeup can be found at <http://www.bigideatrouble.com/dc17badgehack.pdf>

For DEFCON 18, our efforts involved audio and video. It was a lot of fun. The processor that year was a digital signal controller. There weren't a lot of input and output available on the board, so we had to get cracking on how to do ambitious things with limited IO.

Some years, such as DEFCON 23 and 19, and most years before 15, the badge is not electronic. For 23 it was literally a 45 record. Yeah. You had to wear a white 45 record around your neck for like 5 days. I drew a clock on mine and cosplayed Flav o Flav. And, guess who actually showed up at the hotel for photos? Yeah. Flav o Flav himself. Check him out in the photo below left.



THE LOVELY AND PRACTICAL DEFCON 23 BADGE

These sorts of project are representative of badge hacking efforts at DEFCON. If you choose to do this sort of activity or contest or challenge, then you are almost completely dedicated to this project for the duration of the convention. The payoff can be very big, as the winning team gets a coveted Black Badge, which gives DEFCON conference admission for life. Aside from the prize, the opportunity to hack with your friends in a Las Vegas hotel room turned into a lab is totally fun, and the mystery of what hardware will be on the badge isn't revealed until the convention, so you have to be flexible, bring your best guess of tools, or be able to come up with the right tools and equipment in short order. You have only a few days, and with so much else to do, the time flies by.

In other years, like 2016, the badge is indeed electronic, but the badge competition is a puzzle with clues either written on the badge or lanyard, or transmitted over serial port when buttons are pressed, or in the firmware itself. One year, a big clue was tucked away into "unused" memory. For 206, the competition did not involve any hardware hacking on the badge itself. The skull badge (see cover) had a D2000 Intel processor, eight buttons, and a serial port. Pretty simple, but your job as part of the DEFCON nation is to take that badge and do something cool with it. The possibilities are myriad. One could make a game controller or a drone controller or a forklift hijacker or whatever.

So what does all this have to do with amateur radio? I mean, besides the fact that DEFCON is one of

the largest ham radio licensing sessions in the country, and amateur radio features prominently in the program of presentations and demonstrations?

Well, those of us that went to the conference to speak about AMSAT have been talking in the weeks since DEFCON. And, we have given some serious thought to making an AMSAT Phase 4 Badge project. This badge would be amateur radio capable, could serve as really fun thing to take to amateur radio conventions, could be sold as a fundraiser, allows you to contact others - yes actual QSOs - and interact with others, would be hackable or modifiable, and could - this is the best part - seriously provide additional functionality to radios that you might be interested in owning. Imagine unlocking Flex Radio easter eggs or useful functions with an electronic badge.

This year's badge was designed by "1057", and is built around an x86 processor. Specifically, this badge features an Intel Quark D2000 microcontroller, a microcontroller running at 32MHz, with 32kB of Flash and 8kB of RAM.

There is not a lot of IO for this badge. There are eight buttons, laid out as two directional pads, five LEDs, and a battery. There's not much here, but with a close inspection of the 'chin' area of the badge, you can see how this badge was programmed.

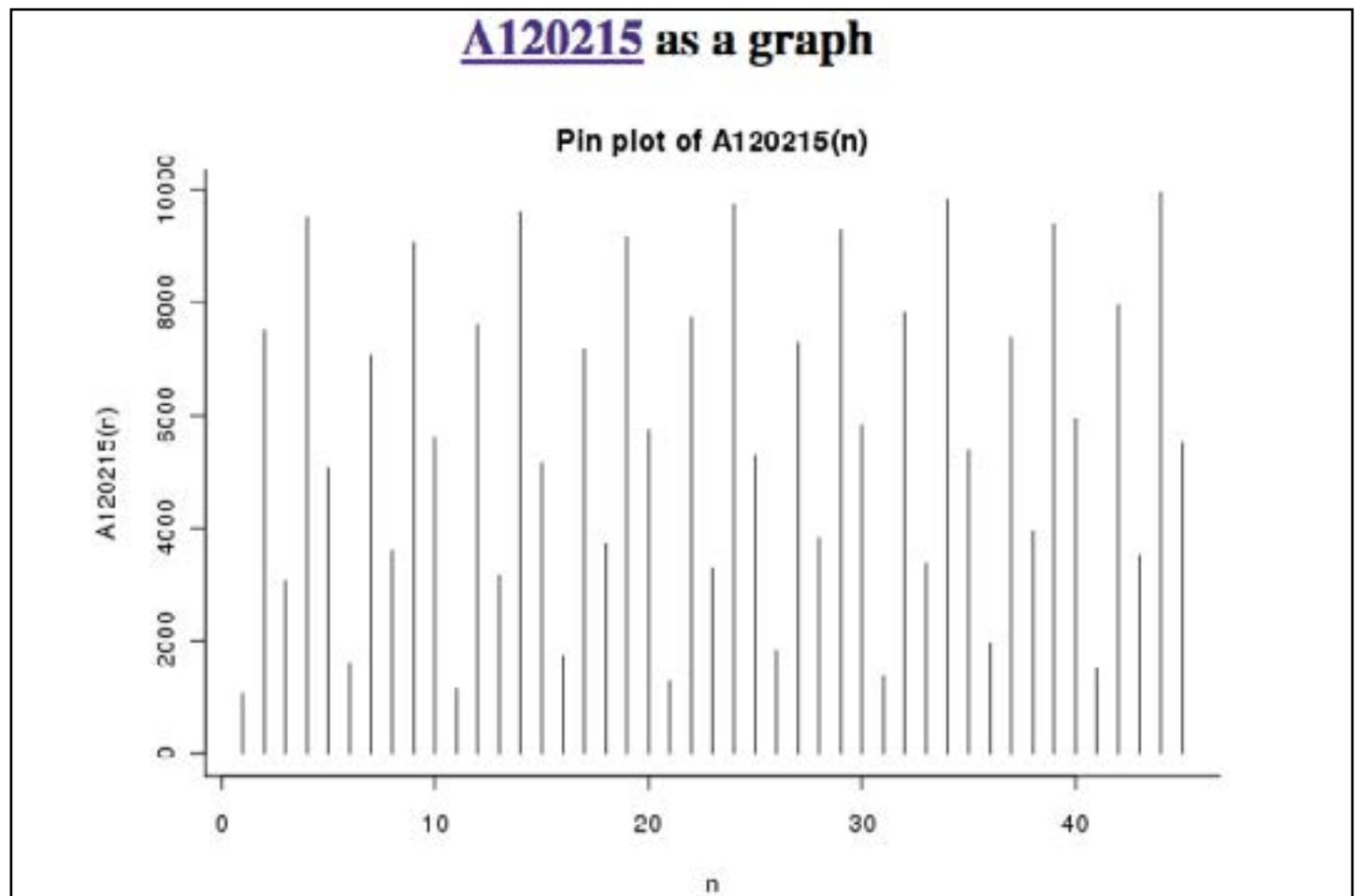
There are a lot of puzzles related to this badge.

If you tilt the badge, you can read words laid out as traces in the bottom copper layer.

It reads, "nonpareil bimil: Icnwc lsrbcx kc htr-yudnv ifz xdgmn yduxnw yc iisto-cypzk".

Another bottom copper text reads, "10000100001 ΣA120215".

We made headway on both of these clues before having to prepare for our talks and other activities.



HERE'S A HINT FOR WHAT 10000100001 ΣA120215 MEANS

For a full writeup on the solved DEFCON 24 badge puzzle from the winning team, see <http://co9.io/post/148716614744/defcon-24-badge-challenge>

Another electronic hackable badge was the Bender badge. Read about this project here <https://hackaday.io/project/9064-andxor-defcon-24-badge>

The three guys behind the Bender badge live local to San Diego, and are currently making and designing a badge for San Diego Maker Faire!

There's nothing stopping us from making an electronic PARC badge. Want to weigh in? Submit some circuit design? Have an idea for something that the badge can do? Write the board and volunteer!

Competition Completed by PARC Member Paul KB5MU

Congratulations to Skunkworks, aka Paul KB5MU, who completed the Hardware Hacking Village reverse engineering challenge. This consisted of showing up, standing in a long line, paying \$2 for a bag of parts, soldering the parts together, and figuring out at least four challenges. Once the circuit was up and running, an LED on the board blinked four times. With every challenge unlocked, the LED on the board would blink one less time. So when you solved the first challenge, it would blink three times. Then two. Then one. Then it would stay lit. Paul won an Arduino Uno as a prize along with DEFCON street cred and had a lot of fun along the way.

The circuit was a small PIC micro controller with a tiny board with lots of extra traces to confuse reversing how all the pins were connected. The first challenge involved cutting a trace that just so happened to be (you guessed it) under the chip. How are your desoldering skills these days? Solder wick can be your friend. Other parts of the challenge involved ciphers, I2C, and downloading the ROM, changing part of the disassembled code, and reprogramming the chip. There was a PicKit3 station at the hardware hacking village. If you're in the market for a PicKit3, then you have a moral obligation to watch these two YouTube videos. Links in the notes. Watch them in order. Otherwise it won't make sense.

<https://www.youtube.com/watch?v=LjfIS65mwn8>

<https://www.youtube.com/watch?v=3YUvIrVINao>



DEFCON has a conference-within-a-conference especially for kids. It's called r00tz and draws a big crowd of children.

r00tz has its own hackable badge that kids get to solder and program on site. At left, Rose aka M4infr4me prepares to solder her badge kit.

Kids also get to lockpick, solve puzzles, pick up a wide variety of swag, listen to their own speaker track (many talks given by kids), and compete in their own CTF (capture the flag) and CTP (capture the packet).



HARD AT WORK IN THE DEFCON HARDWARE HACKING VILLAGE



TYPICAL WIFI NETWORK SELECT SCREEN AT DEFCON



BADGE LANYARDS ARE OFTEN PART OF THE BADGE PUZZLE. THIS YEAR, THERE WERE FIVE DIFFERENT LANYARDS. WHEN LAID DOWN TOGETHER IN ORDER, BOTH SIDES FORMED AN IMAGE AND REVEALED A LIST OF NUMBERS.





DEFCON BADGES OVER THE PAST DECADE OR SO

An update from the LimeSDR team. [View this email in your browser](#)

CROWD SUPPLY

Competition Winners Announced!

The competition drew to a close last week and I have to say that judging has not been easy, on account of there being no shortage of great entries, with many more proposals for uses that we'd really love to support than boards we have available at this point in time.

The first winner is Steve Conklin, who is part of the team working on the AMSAT Phase 4 ground station design. This is a fantastic initiative that we're keen to support and were honoured that LimeSDR will play a part in its development. This could also be a particularly exciting use for the upcoming LMS8001 add-on module which will extended LimeSDR coverage all the way up to 12GHz. Congratulations, Steve, and we look forward to following your progress!

The second winner is Benjamin Larsson, developer of a 433MHz receiver and decoder application with support for over 60 protocols, including everything from temperature sensors and weather stations, to tire pressure sensors and oil level monitors. We can't wait to see this working with LimeSDR and simultaneously receiving data from multiple different systems. This is going to prove an invaluable tool to those working on elegant solutions to the problem of integrating many different proprietary wireless systems. Congratulations, Benjamin, and thanks for developing such an eminently useful piece of software!

Andrew and the LimeSDR Team

[Visit the LimeSDR Project Page](#)

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Right after DEFCON, AMSAT Phase 4 got some more good news!

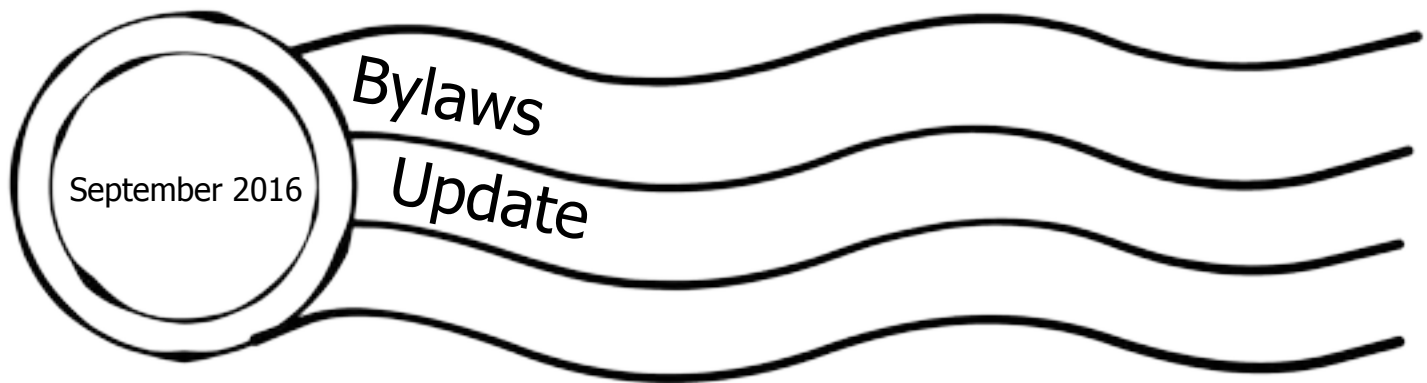
Steve Conklin's proposal to the LimeSDR team to use their board for Phase 4 radio design was declared one of two winners in their recent competition.

DEFCON 24 was a great year for the three PARC members that attended.

DEFCON 25 (2017) promises to be even better, with more people from AMSAT Phase 4 and PARC planning to attend and some big surprises for Wireless Village in the works!



SEE YOU NEXT YEAR!



List of Proposed Bylaws Amendments

- A. Update in accordance with 501(c)(3) status. (approved at August Board of Directors Meeting)
- B. Bring membership language in line with current practice. (approved at August Board of Directors Meeting)
- C. Online Scope. (approved at August Board of Directors Meeting)
- D. Clarify effectivity of dues changes. (approved at August Board of Directors Meeting)
- E. Grammar correction to 5(c) on life memberships. (approved at August Board of Directors Meeting)
- F. Delete suggested order of business for meetings. (approved at August Board of Directors Meeting)
- G. Clarify procedure for board approval of presidential appointments. (deferred for more discussion at August Board of Directors Meeting)**
- H. Define procedure for board to vote by email. (approved at August Board of Directors Meeting)
- I. Make spending thresholds variable at board discretion. (approved at August Board of Directors Meeting)
- J. Add Webmaster as a committee chair. (approved at August Board of Directors Meeting)

Text of bylaws amendments can be found on the following pages.

Proposed Bylaws Amendment 2016-A

Purpose

To make the Bylaws compatible with the club's new 501(c)(3) status.

Discussion

The existing Bylaws specifically call out the California law for mutual benefit corporations. The club is no longer that type of corporation. This amendment eliminates references to that specific law.

In addition, the text of Section 3(a) doesn't make any sense; it quotes inappropriately from the law by referring to "this law". In fact, Section 3 doesn't do anything but repeat things already stated in the Articles of Incorporation.

Text of Amendment

Delete the entire text of Section 3 and replace with the following:

The purpose of this corporation shall be as stated in the Articles of Incorporation.

In Section 4(d), replace the text:

the California Nonprofit Mutual Benefit Corporation Law

with the following:

California law.

In Section 7(o), replace the text:

the California Nonprofit Mutual Benefit Corporation Law

with the following:

California law.

In Section 8(h), replace the text:

the California Nonprofit Mutual Benefit Corporation Law and any other applicable laws

with the following:

applicable laws

In Section 9(d)(3), replace the text:

required by Section 8210 of the California Nonprofit Mutual Benefit Corporation Law

with the following:

required by law

Proposed Bylaws Amendment 2016-B

Purpose

To make the Bylaws consistent with current practice with regard to memberships and renewals.

Discussion

The existing Bylaws evolved from an old scheme whereby every membership expired at the end of the club's fiscal year to a newer scheme in which memberships can expire at the end of any month. Remnants of the old scheme remain, encouraging members to pay prorated monthly dues to make their expiration dates line up with the club's fiscal year. This is no longer considered helpful.

The existing Bylaws set an explicit dollar amount for dues, but then give the board the power to change it. This has led to some confusion with respect to the effective dates of dues changes.

The existing Bylaws encourage members to prepay for two or more years in advance, but do not set any limits on prepayment or explain what happens to prepaid memberships when the board changes the dues.

Text of Amendment

In Section 5(a), replace the text:

The annual membership dues for both Full and Associate Members shall be \$12.00 (which shall include a subscription to the newsletter).

with the following:

The annual membership dues for both Full and Associate Members shall be set by the board.

In Section 5(a), replace the text:

The \$12.00 dues

with the following:

The dues

In Section 5(a), replace the text:

Members are encouraged to pay dues in increments of two or more years at one time. At any time after paying dues for the first year, a member may pay additional dues at the rate of \$1.00 per month in order to make his membership expire at the end of the corporation's fiscal year. Members are encouraged to do so.

with the following:

Members may pay dues for one or more whole years at a time, but not more than ten years beyond the date of payment.

In Section 5(b), replace the entire text:

(b) The amount of the annual dues may be changed from time to time by the board. Any change will be effective for the following fiscal year.

with the following:

(b) The board may change the amount of the annual dues from time to time. Any change will be effective for new memberships and renewals beginning at the start of the following fiscal year. Prepaid dues will be honored at the annual rate in effect when they were paid.

Proposed Bylaws Amendment 2016-C

Purpose

To permit the club's newsletter to be published exclusively online.

Discussion

The existing Bylaws require a monthly newsletter to be "sent" to members, with a strong implication that it is printed on paper and mailed. Since this has become cost prohibitive, we need to make it clear that online publication suffices.

Text of Amendment

Replace the entire text of Section 15,

(a) The corporation shall publish a monthly newsletter titled SCOPE. The cost of a subscription to SCOPE shall be \$3.00 inside San Diego County and \$4.00 outside San Diego County. The cost of a subscription shall be included in the dues of members. Nonmembers may be allowed to subscribe to SCOPE with the approval of the board. The board may authorize the Editor to omit publication of SCOPE for a particular month.

(b) The board may authorize the Editor to distribute the newsletter electronically. Members who opt not to receive the newsletter by mail shall be deemed to have received the newsletter electronically, and this shall satisfy all requirements for notice or publication in the newsletter specified in these bylaws. No reduction of membership dues shall apply for members who opt not to receive the newsletter by mail.

with the following:

(a) The corporation shall publish a monthly newsletter titled SCOPE.

(b) The board may authorize the Editor to publish the newsletter in any form, including online electronic distribution, or in multiple forms.

(c) The cost of a subscription to the newsletter in at least one form shall be included in the dues of the members. No dues reduction shall apply for members who opt not to receive the newsletter in such form.

(d) Nonmembers may be allowed to subscribe to the newsletter with the approval of the board.

(e) The board may authorize the Editor to omit publication of SCOPE for a particular month.

(f) Regardless of the form of publication, placement in the newsletter shall satisfy all requirements for notice specified in these bylaws.

Proposed Bylaws Amendment 2016-D

Purpose

To correct nonsensical grammar in a sentence about life memberships.

Discussion

The existing Bylaws Section 5(c) contains a sentence that doesn't make sense:

The board shall fix the amount of such dues so as to take into account in a degree suitable to the board the relative age classes such dues on accurate life expectancy factors.

This sentence is apparently intended to give the board permission to consider the age of the prospective life member when setting the cost of life membership, but aside from the admonition to use "accurate" life expectancy factors, it doesn't really impose any requirements or grant any special permissions.

Rather than try to wordsmith this sentence to be grammatical, this amendment simply removes it. The remaining sentence of Section 5(c) covers the subject adequately.

Text of Amendment

In Section 5(c), delete the text:

The board shall fix the amount of such dues so as to take into account in a degree suitable to the board the relative age classes such dues on accurate life expectancy factors.

Proposed Bylaws Amendment 2016-E

Purpose

To remove the unnecessary suggested order of business for regular meetings.

Discussion

There is just no point in listing this in the Bylaws. We don't follow it anyway.

Text of Amendment

In Section 7(b), replace the entire text:

(b) The suggested order of business for regular meetings is:

(1) Call to order.

(2) Pledge of Allegiance.

(3) Secretary's Report.

(4) Treasurer's Report.

(5) Committee Reports.

(6) Announcements.

(7) Introductions.

(8) Old Business.

(9) New Business.

(10) Program.

(11) Adjournment, followed by social period.

with the following:

(b) (reserved)

Proposed Bylaws Amendment 2016-F

Purpose

To create a defined procedure for the board to grant or withhold approval for presidential appointees.

Discussion

There has been a bit of controversy about what it means that the president makes appointments “subject to the approval of the Board”. In particular, does this mean that the board has to take explicit action to approve each nomination, or does it just mean that the board has an opportunity to disapprove each nomination?

Arguably, the plain language suggests that explicit action is required. However, common practice has been that the board doesn’t bother to pass a motion approving each appointment. This amendment makes it clear that board inaction grants board approval.

Text of Amendment

Add a new section at the end of Section 8:

(w) An appointment or designation made by the President shall be deemed to have the approval of the board upon the adjournment of the next regular board meeting, unless the board adopts a resolution withholding such approval.

Proposed Bylaws Amendment 2016-G

Purpose

To allow the board to conduct business by email.

Discussion

The existing bylaws have no provision for the board to do any business by email.

They can do business in a regular or special meeting. Meetings can be held by radio or teleconference, but they cannot be held by email because of the requirement that all participants be able to hear one another.

Alternately, they can do business by unanimous consent in writing. If you grant that email is “in writing”, then it’s possible to do business by email, but only if every single director responds (and agrees), and there’s an extra paperwork burden to archive the written consents as if they were meeting minutes. This is a very cumbersome way to do business.

Some other amateur radio organizations are more flexible. For example, TAPR’s bylaws allow the board to be continuous session “by the use of telecommunication systems”. AMSAT’s bylaws allow the board to hold “telegraphic consultations”, with requirements for notice and minutes.

This amendment simply reduces the requirement from unanimous to majority and clarifies that email counts. The requirement that the agreements be filed with the minutes is retained.

Text of Amendment

In Section 8(v) replace the text:

If all the members of the board consent in writing

with the following:

If a majority of the members of the board consent in writing or by electronic mail

Proposed Bylaws Amendment 2016-H

Purpose

To remove fixed dollar amount limits on spending without board action.

Discussion

The existing bylaws specify fixed dollar amount limits for the size of the treasurer's petty cash fund (\$25), and for the largest expenditure that can be made without board approval (\$50). After 24 years of inflation, these limits are starting to seem a little low.

This amendment allows the board to change the specified dollar amounts.

Text of Amendment

In Section 9(d)(2), replace the text:

The treasurer may maintain a Petty Cash Fund of not more than \$25.00, to be used for incidental expenses. No expenditures in excess of \$50.00 shall be made without approval by the board.

with the following:

The treasurer may maintain a Petty Cash Fund of not more than \$25.00 (or a different limit adopted by the board), to be used for incidental expenses. No expenditures in excess of \$50.00 (or a different limit adopted by the board) shall be made without approval by the board.

Proposed Bylaws Amendment 2016-I

Purpose

To recognize the club's webmaster as a standing committee chair, eligible to be designated a board member.

Discussion

The board consists of the four elected officers (President, Vice President, Treasurer, and Secretary), plus two elected directors, plus zero to three (typically three) of the chairs of specific standing committees. Originally, these three committee chairs were fixed: the editor of the newsletter, the membership chair, and the repeater chair. Later, in 1997, the repeater chairman job was split up into a Repeater Technical chair and a Repeater Site chair, and the President was given the power to designate which three of the four chairs would serve on the board, with the approval of the board.

The newsletter is discussed in the bylaws, but the newsletter editor is barely mentioned. The other three jobs are not mentioned at all, except where they are listed as standing committee chairs eligible to be designated to the board. None of them have defined responsibilities.

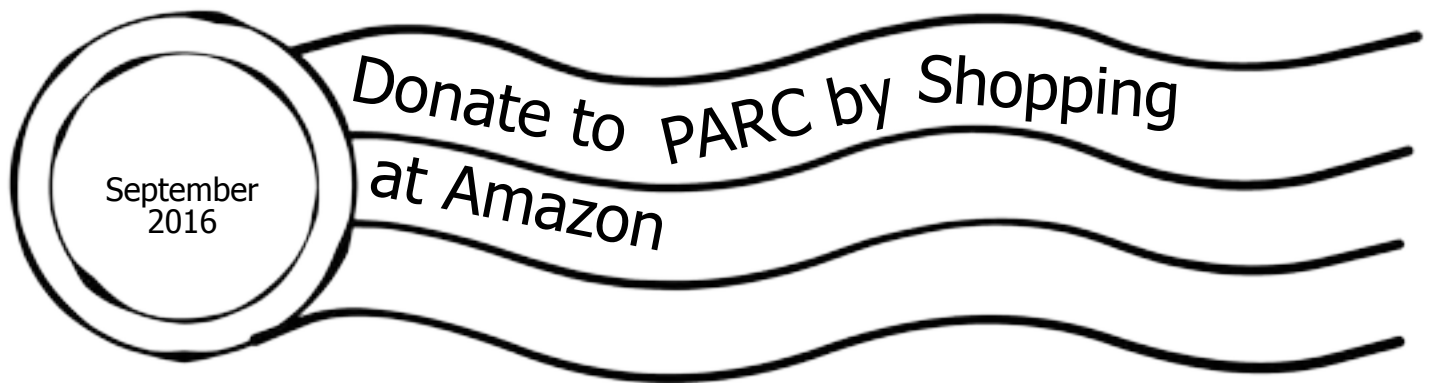
There are potentially lots of committees, and they are all important to the success of the club. Only a few of those committees operate year in and year out, and have a direct impact on most club members. Since these bylaws were written, technology has changed and now it may be seen that the club's web site is in the same category as its newsletter. Both are vital to the club, and the editor of the newsletter and the webmaster of the web site need to keep abreast of a wide variety of club activities so they can report them to the members.

This amendment adds the webmaster to the list of standing committee chairmen who may be designated to serve on the board by the President.

Text of Amendment

In Section 8(t), add the following item to the numbered list:

(5) the Webmaster



As publicized earlier this year, PARC is now a not-for-profit charity, and fund donations to PARC are eligible for tax deduction itemization for those who are eligible for such a tax itemization.

PARC also announced that in cooperation with Amazon, it is now possible to shop on Amazon at NO cost increase, and have Amazon distribute a percentage donation to PARC.

This is done by shopping on www.smile.amazon.com.

If you choose to avail yourself of this opportunity, when shopping on www.smile.amazon.com, specify Palomar Amateur Radio Club as your charity of choice for donation.

For more information:

http://smile.amazon.com/gp/chpf/about/ref=smi_aas_redirect?ie=UTF8&ref_=smi_se_ft_abt_saas

amazonsmile
You shop. Amazon gives.

Shop Now



Want to help PARC earn more awards?

Contact board@palomararc.org about using the club call sign in upcoming contests or operations!

We aren't that far from getting several more shiny stickers!

At right is the overall picture of our club call sign's Logbook of the World WAS record.

Notice that 20m Phone and 20m CW are pretty close to having all 50 states.

Which states are missing? See the image at the bottom of this page. We need Hawaii for 20m Phone and Nevada for 20m CW.

Think you can bag these states to give us two more awards?

The cost of the award will be covered by a donor. Want to help?

- 1) arrange for permission to use W6NWG by writing the board about your plans.
- 2) submit a log of the contacts to the board. Uploading to LoTW and application for awards will then occur.
- 3) get accolades from the club!

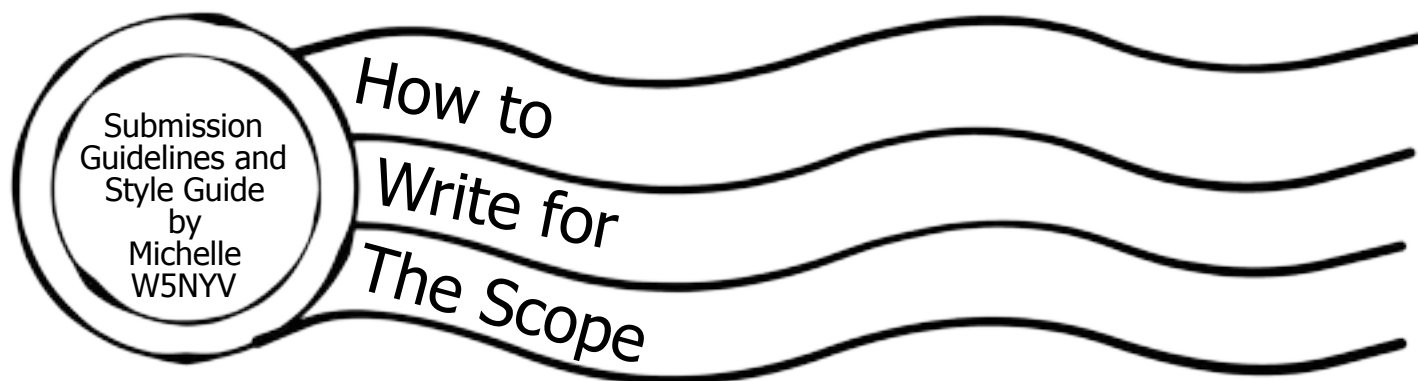
Your Logbook WAS Account (W6NWG WAS)

Account Status

WAS Award	New LoTW QSLs	LoTW QSLs in Process	WAS Credits Awarded	Total
Mixed *	0	0	50	50
80M	22	0	0	22
40M	39	0	0	39
20M *	0	0	50	50
15M	40	0	0	40
10M	6	0	0	6
CW *	0	0	50	50
Phone *	0	0	50	50
80M Phone	15	0	0	15
80M CW	13	0	0	13
40M Phone	19	0	0	19
40M CW	38	0	0	38
20M Phone	49	0	0	49
20M CW	49	0	0	49
15M Phone	23	0	0	23
15M CW	37	0	0	37
10M Phone	5	0	0	5
10M CW	1	0	0	1
Triple Play	100	0	0	100
5-Band	157	0	0	157

* = Award has been issued

20M Phone	49	<input type="checkbox"/>	The 20M endorsement sticker to be affixed to your Phone WAS certificate. Missing: HI
20M CW	49	<input type="checkbox"/>	The 20M endorsement sticker to be affixed to your CW WAS certificate. Missing: NV



Submission Guidelines

Article submissions in most modern file formats are accepted. Plain text in the body of an email, with attached full resolution photographs, is most preferred. Dropbox and several other file transfer services are supported.

Sending a fully-formatted PDF, so that the author can control formatting and exact wording, is also accepted. We use Tahoma font for body text, but will accept PDFs with other fonts. If any editing is necessary, then it will be negotiated with the author, and will then be the responsibility of the author.

For 2016, the Scope theme is postal marks and radio-related stamps. Postal theme artwork is welcome! Scans of amateur radio stamps, stories about stamps in general, interesting or quirky postal marks, fun things to do with the mail, puzzles about stamps, interesting stamp-related narratives, stories about current mail technology, QSL cards, QSL bureaus, and QSL collections are all very highly desired throughout 2016.

We want to publish articles about amateur radio and amateur radio related events and interests. Amateur radio covers a very broad swath of subjects. Contesting, technical experiments, narratives about the hobby, stories about how you became a ham, suggestions for an interview, ideas for more puzzles and games, experiences in community service, emergency communications, tours and travelogues of places of interest to amateur radio operators, mobile installation articles, ham shack articles, good operational practices, ideas for what PARC should be doing in 2016, and many other subjects are what we want to print in the Scope every month.

Articles that misrepresent a person, subject, or event will not be printed. Articles that are attack pieces, demean groups or individuals, or ridicule others will not be printed. The editorial staff

of the Scope, in coordination with the Palomar Amateur Radio Club Board of Directors, has the final say on what is published in the club newsletter. Being a member of the club does not guarantee that a submitted article will be published. No payment is given in exchange for any article. Copyright remains entirely with the original author.

Style Guide

Time: Use 24-hour time in the following format.

"We started the event at 9:00 and began tear down at 16:00."

Name and Call Sign: Name is followed by call sign with no commas.

"Michelle Thompson W5NYV began writing the article."

After the first name and call sign is listed in an article, the style is to shorten it to first name and call sign with no commas.

"Michelle W5NYV was writing all day."

Do not use ellipses unless you know exactly how to use ellipses.

Ellipses... are not... the same thing... as a comma... or a pause...

Capitalization should be used for proper nouns. Proper nouns are the names used for an individual person, place, or organization. They are spelled with initial capital letters. For example, Michelle, New Mexico, and Boston Red Sox.

"And... that's it! That's All there is To It!"

What's the next step? Write an article, or propose one. If you need help, just ask! Mail to: scope@palomararc.org

You can join or renew your membership, find a repeater listing, find contact information for the board all on the club's web site <http://www.palomararc.org>

Editor: Michelle Thompson W5NYV

Submissions: scope@palomararc.org

Questions? Ideas? Comments? W6NWG@amsat.org

Featured Program:

Palomar Amateur Radio Club will present Sidewalk EME by Doug Millar K6JEY.

Doug Millar, K6JEY, will be our guest speaker and has been doing EME since 1991. His first contact was on 2 meters on CW. Since then he has been on 432 EME and on 1296MHz EME. His main radio uses a 10 foot dish and a 300W transmitter. The program is oriented toward how a person can get on EME simply and cheaply. In Doug's case he had to also not put up any antennas. Doug was first licensed as KN6JEY in Redondo Beach. He is a Technical Adviser for the ARRL in Metrology and test equipment repair. He is interested in astronomy and has discovered a supernova. He is also a member of the San Bernardino Microwave Society and has radios on 1.2, 2.5, 3.6, 10, 24, 47, 79 and 122Ghz.

Come at 7pm to socialize. We look forward to seeing you at the Carlsbad Safety Center, 2560 Orion Way, Carlsbad, CA.

Sign up for the PARC Email Lists:

<http://www.palomararc.org/mailman/listinfo>



Back of the Human Badge from DEFCON 24