

# SCOPE

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



Do you have news? An idea for an article? Please submit it! We are always looking for articles, and need your help to spread the word on club member activities.

Palomar Amateur Radio Club will celebrate its 75th anniversary in February of 2011. Please send in stories and pictures (with description and names if possible) for inclusion in the SCOPE. Old-timers please help, newer members send in things also.

On October 16, 2010 Palomar Amateur Radio Club supported three different repeater hosted events. On the 147.075 MARA conducted an exercise to achieve simplex mapping. On 147.130 the MS140 bicycle ride conducted safety communications. On 146.730 the Boy Scouts participating on the Jamboree On The Air used the repeater to introduce and promote amateur radio. Over 40 Scouts received their Merit Badges on Saturday.

PARC also provided HF equipment, some members, a total solar station, and t-hunt radios. Kudos to

N6KI, KG6RET, KG6JEI, KJ6BWX. KJ6BWX, a 15 year old scout coordinated this event.

October's annual auction went well.

November's meeting will be with Gayle K6GO, and compatriots on a 160m portable antenna.

November 14 PARC will host another Operating Day at Double Peak Park in San Marcos from 8:00 to 5:00 PM. We will have HF, d-star, PSK31 and other digital modes, satellite, and hoping for ATV. We are trying to demonstrate and encourage new users to try different modes and upgrade. Open to all, especially the public.

December meeting is elections and year end social.

January will be on antenna modeling.

Dennis KD6TUJ  
Palomar Amateur Radio Club

## Save the Date

### Club Meeting

**3 November 2010**

Gayle Olson K6GO will present a program on 160m antennas.

### Board Meeting

**10 November 2010**

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

### Club Event

**14 November 2010**

Club Operating Day at Double Peak Park. Everyone welcome!

## Club Membership for November Edition

New Members Joining PARC:

KJ6JQV, KJ6KHZ, KJ6KIB, and W6JPK Not bad for the "Auction Night".

I'm pleased that a few members listed as "expired" in the SCOPE, that receive their SCOPE by the web have renewed - great. But still the list grows each month. Since we have published the SCOPE on the web, we have lost 69 members that chose to get the SCOPE on the web, but have not renewed their membership when renewal was due.

The following have not renewed, due in October and November this year, and hopefully they will see their calls here, and get a check in the mail! KI6ZLG, KI6THI, KD6FY, K6MHG, KG6NDX, WZ6RAM, KH6YFS, N6MJS, and W6TXK. Please Renew, Pretty Please!

The club does need your support.

AI  
W6GNI

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

## Upcoming General Meeting Topics

November - Gayle K6GO "160m Antenna"

December - Social

January - Michelle W5NYV "Antenna Modeling"

## October Fold & Staple Crew

W6GNI AI & Kathy

WA5ACE Sonny

KI6LLC Roni

## YL DXpedition

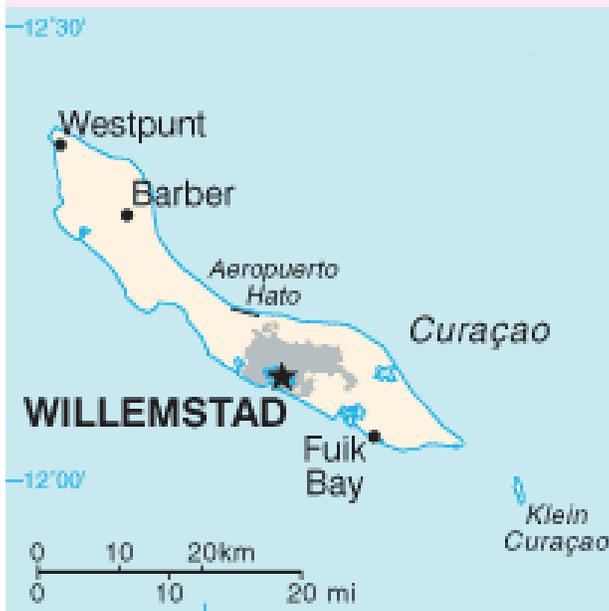
At the August 2010 PARC meeting, Gayle K6GO announced a YL DXpedition to Curacao, planned for March 17-21, 2011. Satellite operations are being investigated. Phone is planned to be the primary mode. The DXpedition will include Gayle Olson K6GO, Rusty Kalkofen AF6WF, Michelle Thompson W5NYV, Ellen Utchig N6UWW, Georgia Smith KI6LAV, Cathy Gardenias K6VC, and Marilyn Bolnick KJ6YL. These seven participants will be operating the Caribbean Contest Consortium (CCC) station PJ2T on as many bands as possible. This permanent station is operated by and for the members of

CCC. Members have priority in reserving the station, and have amassed a very impressive record in the 10 years the station has been active in its current form. While none of the YL DXpedition members belong to the CCC, they are hoping to use this experience as a springboard to further YL DXpeditions.

The history of PJ2T has roots in a 1994 VP5VW CQWW CW Multi-Multi expedition organized by Don Karvonen, K8MFO. The operating locations at the station are located in the expansive living room of the station house.

YL DXpedition website  
<http://www.yldxpeditons.com/>

Caribbean Contest Club  
<http://asgard.kent.edu/ccc/>



# Advertisements are free for members

Have items that need to find a new home? Advertise here! Send your ads to [scope@palomararc.org](mailto:scope@palomararc.org)

## For Sale



This is a Hewlett-Packard 3577A with the 35677A S-Parameter test set and all interconnect cables.

With an open – short – load you can calibrate out transmission lines and take antenna measurements up on the tower.

I am looking for \$3000 or best offer.

[Mike-lebo@gmail.com](mailto:Mike-lebo@gmail.com)

## For Sale

Item	Price
YAESU FT-1000	\$2,500.00
Kenwood TS-950 S	2,500.00
FT-2500 M	350.00
Kenwood SWR/PWR Meter, Model SW-2000	50.00
TR-7330 2 M	150.00
Astro PS7 A	25.00
Cubic Astro -150 A-10-80M Transceiver	250.00
Ten-Tec Centurion amp 1kw	1,500.00
Ten-Tec Titan amp 1kw	2,500.00
FLUKE Meter Model 77	65.00
SHURE Microphone Push to talk Model 444	30.00
3-500 tubes	100.00 ea.

Contact: R. F. Krist, W6KTE, (760) 724-2786

## For Sale

Crank-up tower, 4 sections (collapsed length=12' 9" ), triangular- 18" bottom to 10" top. 3' top bolt on tapered section with rotor head and thrust bearing installed + 6' of pipe above the taper. Base plate 22" x 22" with 3 studs to set tower on. Lifting winch had a motor at one time but now gone, leaving a spline shaft sticking out of the worn gear box to which a handle or motor can be grafted. Located in Poway, weight 400+/- lbs for tower alone and 150+/- lbs for the top piece, base plate and winch - \$250. Gary 858-748-6076 [wb6gsn@gmail.com](mailto:wb6gsn@gmail.com)

**For Sale:** HUSTLER 6BTV High Performance HF Vertical Antenna system, 80/75/40/30/20/15/10 m, complete with 250ft spool 14 ga wire and all precut radials, SS Tilt base and SS Radial plate. Used one year. Bought new at \$400, will sell for \$200. contact: Rich Ortloff KE6DUG 760-861-1406

**For Sale:** 6BTV Vertical Antenna. Crank up Tower with rotor and 3 El Yagi. Must be taken down and removed. Call Lee, (760) 726-1097

# Microwave Update 2010

by Michelle W5NYV

At least a half-dozen members of the San Diego Microwave Group and the Palomar Amateur Radio Club traveled up to Cerritos, CA for this year's Microwave Update. Held at the Sheraton on 21-24 October, this remarkable amateur microwave event attracted over 150 ham radio operators.

For those able to arrive in Cerritos on a chilly, overcast, and drizzly Thursday morning, there was a tour of the Jet Propulsion Laboratory. At 10:21 am, we were interrupted by an earthquake drill called the Great California Shakeout. We evacuated out into the parking lot and waited for the all clear. The 5000 employees of JPL gradually joined us as their buildings were emptied and volunteer "floor wardens" checked that everyone was present and accounted for. Coworkers greeted each other and held impromptu conferences. While walking back to the next stop on the tour, we saw several detailed smaller-scale drills with practice triage exercises. Volunteers acting as casualties were given patient assessments and then treated by drill participants. There were patients on backboards being moved to a staging area and ambulances being loaded in the alley. After a time, we resumed our trek through JPL, heading next to the labs to see the next Mars rover being assembled in a clean room.

The tour was enabled by Pete Lyman, K6PTL a member of the San Bernardino Microwave Group who happens to be a former deputy director at JPL. Through his efforts, and with the logistics support of Tony Long KC6QHP, forty conference attendees were able to tour JPL's science labs and get several highly detailed technical presentations. One of the presentations was given by someone directly involved with a major refurbishment of

the azimuth races on a 70m dish belonging to the Deep Space Network. Repair of such a large structure is an art unto itself. The descriptions of the problem-solving and efforts required to make necessary adjustments and provide required maintenance to the dishes were amazing. These 70m dishes are going to be replaced with pairs of 34m dishes over the next several years. However, the 70m dishes will continue to be used for other radio astronomy after they are retired as front-line DSN infrastructure. Thursday was also the day dedicated to an area surplus tour.

Conference talks began on Friday morning and continued through Saturday afternoon. Between talks were numerous auctions of microwave-related equipment and tantalizing previews of the prizes to be awarded at the Saturday evening banquet.

The variety and quality of the talks was very high, with several extremely entertaining presentations.

*Did you participate in the California Shakeout? We sure did! Along with over 5000 employees of JPL. Here we all are, assembled in the parking lot near the visitors center. The view is looking back towards the buildings. Photo by W5NYV*



<p><b>HAM RADIO OUTLET</b></p> <p>Jose XE2SJB Jerry N5MCJ Joe N6SIX</p> <p>H R O</p>	<p><b>KENWOOD rf CONCEPTS DIAMOND US TOWERS KANTRONICS YAESU, MFJ, ICOM BENCHER, Inc. HUSTLER COMET AMERITRON</b></p>	<p><b>Astron, AEA, OUTBACKER Larsen Antennas TEN-TEC Hy-gain, Tri-EX, Cushcraft And Others too Numerous to Mention!</b></p>	<p>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.</p>
<p>Open: 10a.m. – 5:30p.m. Monday thru Saturday <i>Ask about our great prices</i> 858 560-4900 or toll free 1-800-854-6046</p>	<p><b>Directions:</b> On 163, take <b>Clairemont Mesa Blvd.</b> 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 <b>real</b> antennas!</p>		



*Assembly of the Mars Science Laboratory on the day of our JPL tour. For a live feed of the assembly floor, visit <http://marsprogram.jpl.nasa.gov/msl/> photo by W5NYV.*

Tony Long KC6QHP described his 47 GHz Transverter. He shared his experiences constructing his transverter with bare MMICs and gave results from experiments making the physical connections to the MMICs. Tony used both traditional machine tool construction as well as electronic discharge machining in the construction of his rig. An extremely attractive design, Tony's transverter sparked a lot of conversation.

Walter Clark presented a two part program that summarized efforts to repeat all the major optical physics experiments in the microwave bands. The most enthusiastic response was given to a simple apparatus that clearly demonstrated different types of polarization.

If you have ever slogged through a college physics lab, with two-slit experiments, and diffraction gratings, then this presentation was a real delight, as all those old familiar experiments were re-purposed into an amateur radio context.



*The conference room at the Cerritos Sheraton fills with microwave enthusiasts as the first set of talks begins. Photo by W5NYV.*

Kent Britain WA5VJB gave a whirlwind tour of very early radio electronics. While most radio operators in the room were familiar with the frequently recited narrative of early radio spark gap experimentations, Kent uncovered new territory by focusing on the extremely compelling contributions of Indian scientist J.C. Bose. Bose demonstrated radio transmission in 1896 in Calcutta in front of the British Governor General. The three-mile transmission was impressive enough that he was invited to repeat his demonstration to the Royal Society in London in 1899. Bose was offered the position of Professor at Cambridge, but he declined.



*Walter "Mad Scientist" Clark demonstrates classical optical physics experiments at microwave frequencies. Photo by W5NYV.*

It is believed that Marconi, who was present at the meeting of the Society, stole Bose's notebook. Marconi's "Coherer", introduced in 1901, was (coincidentally?) an exact copy of that of Bose. Kent also gave a presentation on the many different types of waveguides. His examples ranged from the very small, to the extremely large, from the humble and simple, to the gloriously complex. The stories behind many of his photographs were ample proof of an extremely interesting career.

A non-ham presenter appeared at this year's Microwave Update. Dr. Cam Nguyen found out about Microwave Update while on the web, realized he'd be in town visiting relatives on the same weekend as the conference, and

*continued bottom left of page 12*

# Minutes

Palomar Amateur Radio Club Board of Directors  
September 9, 2010

The meeting was called to order at 7:02 by Dennis Baca KD6TUJ at the home of KB5MU.

President Dennis Baca KD6TUJ  
Treasurer Georgia Smith KI6LAV  
Secretary Gary Kent W6GDK  
Director #1 Paul Williamson KB5MU  
Director #2 Conrad Lara KG6JEI  
Membership Al Donlevy W6GNI  
Scope Editor Michelle Thompson W5NYV

**Treasurer's Report** The treasurer's report for August presented by KI6LAV. Total assets as of 7/31/2010 are \$13,431.45. Income was \$579.12, Expenses were \$601.36. We had receipts of \$178.02 from Rick Roberts N1OW for picnic food. Motion to approve by KB5MU, second by W6GNI. Approved

**Secretary's Report-** Minutes of the August meeting were presented by W6GDK. Motion to approve by KB5MU, second by W5NYV. Approved

**General Meeting:** October meeting will be the annual auction at the Harding Community Center in Carlsbad. Meeting in November will be by K6GO- a portable antenna for 160 meters. W5NYV's presentation on modeling antennas will be in January.

**Membership Report:** Current membership is 291.

**Repeater Site/Technical Report:** There was work done on the 146.73 repeater. The 147.075 repeater power amp is now operating. Using sound engineering principles, the 6 meter box was improved by the magic of wiggling connectors, and applying some mystical blue stuff. Guy wires were tensioned to 85 pounds. Need to reinforce the seal on the roof on building 4 (maybe the blue stuff would help?). See page 7!

NEW business:

We will hold Operating Day Redux on November 14 at Double Peak Park. (There is a scheduling conflict with a picnic on that day)

Motion to adjourn at 8:15 PM by KB5MU, second by W6GDK. Approved.

Being some what taken aback by the earlier adjournment time, the board had a tour of KB5MU's lab and photo studios.

Next meeting will again be at home of Paul Williamson KB5MU on October 13 starting at 7PM. Address is 5371 Carmel Knolls Drive.

Submitted by Gary Kent W6GDK



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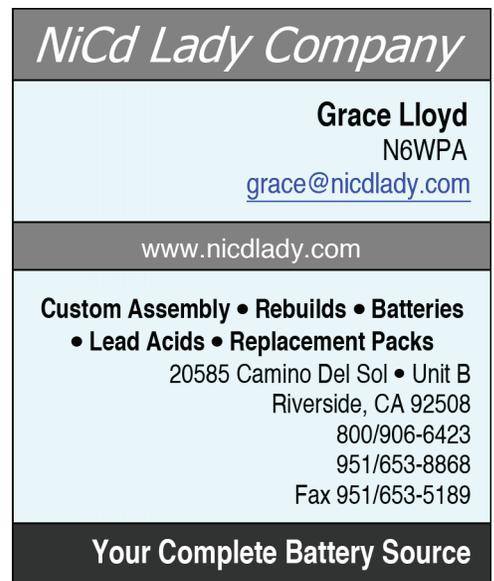


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- Mild Abrasive Cleaner
- Removes Oxidation
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- Mineral Oil

## Chemical Components

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White Mineral Oil.....	(8042-47-5)	<1%
1,1,1,2-Tetrafluoroethane.....	(811-97-2)	15-25%
Dye		<1%
Diatomaceous Earth/Attapulgite Clay.....	(8031-18-3)	<1%
Petroleum Lubricant Blend		20-30%
n-Heptane.....	(142-82-5)	40-60%
Fragrance		<1%

## Environmental Policy

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## Resources

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# Good News, Bad News

compiled by Michelle W5NYV

This article is about the recent legislative action in Oceanside. Reports from eyewitnesses and those directly involved with the process are presented, without any editing. I feel that this original narrative, even though it is only a partial accounting, is the best way to frame the events that have occurred. If you live in Oceanside, then your participation is needed. Thank you to those that have taken the time to write about their experiences.

## **Fred AE6IC wrote:**

"Pass the word: Wednesday, October 20, 2010, at 6:00 PM, Same place as last time. Your presence is super important.

You have all the information. You know that something is wrong. If you don't have time to read the whole agenda thing, the bottom line is this the same old arbitrary antenna height restrictions are still there. Our efforts to address the physical requirements for ham antennas have fallen on deaf minds. A 40 meter antenna is a 40 meter antenna ... we've even provided them with a website that explains the physics in layman's terms. Yet every Radio Amateur antenna application will be encumbered by special studies and redundant justifications.

Our efforts to apply the statute in California Section 65850.3 are being ignored. They know it's there; I've seen it in their paperwork. By not acknowledging it in public they think it will go away or that we will get tired and go away. Something is wrong.

We provided them with references to the "Sense of Congress" in Public Law 100-594 and to the "Joint Resolution of Congress to Recognize the Achievements of Amateur Radio as Public Record" in Public Law 103-408. Their strategy continues to exclude Oceanside members of the Amateur Radio Service from any meaningful input into the proposed Article 39. Something is wrong.

Each of us has a duty to respond. Every ham should send another email addressed to every member of the City Council , NOW. Their email addresses are:

1. His Honor, Mayor Wood, [jwood@ci.oceanside.ca.us](mailto:jwood@ci.oceanside.ca.us)
2. Council Member Sanchez, [esanchez@ci.oceanside.ca.us](mailto:esanchez@ci.oceanside.ca.us)
3. Council Member Feller, [jfeller@ci.oceanside.ca.us](mailto:jfeller@ci.oceanside.ca.us)
4. Council Member Kern, [jkern@ci.oceanside.ca.us](mailto:jkern@ci.oceanside.ca.us)
5. Council Member Lowery, [clowery@ci.oceanside.ca.us](mailto:clowery@ci.oceanside.ca.us)

Your presence at the meeting is super important. If you are physically able; BE THERE WITH YOUR ENTIRE FAMILY!

Pass the word.

Lastly, say a prayer. "Take the wings of the morning" (Psalm 139, 9 and 10)  
73, Fred , AE6IC, [hamkt4fk@att.net](mailto:hamkt4fk@att.net)

" Do or Do-not. There is no 'Try'..." ~ Yoda"

## **Fred AE6IC wrote:**

"If the City Council goes along with a request to create a special ham-only ordinance we need to have a proposed ordinance ready to discuss. Attached is my first draft. Please read and respond with constructive comments. I used the Costa Mesa ordinance as a starting point.  
73, Fred, AE6IC"

*Blue Stuff can fix anything.  
Maybe even politics.  
Photo submitted by KB5MU.*

## **Dennis KD6TUJ wrote:**

"Wednesday, October 20, 2010 at 4:00 PM the Oceanside City Council will be recom-





mending on the aproval of the ordinance as written. The amatuer community needs to have a presence to request this ordinance be redone.

Actual time will be 6:00 PM on item 27

Pass the word and please help.

Dennis  
Palomar Amateur Radio Club"

**Howard KY6LA wrote:**

"The Bad News is that they passed a highly restrictive Anti-Antenna Ordinance designed for cell towers but including ham towers, which if fully implemented would cost a ham thousands of dollars to apply for a permit and for all intents and purposes make it virtually impossible to erect a ham antenna.

The Good News is that they acknowledged that the ordinance as passed really should only apply to cell towers and would be unduly burdensome to the "Unsung Heroes" Amateur Radio Operators. They agreed to have their legal people work with the ham community and report back to the council at the First Meeting in January with suggested modifications to the ordinance that would be much less burdensome to this vital public safety service.

DO NOT APPLY for a permit in Oceanside in the next 60 days... you will not get a tower approved until those changes are approved.

The Hams were well organized through the untiring efforts of Fred Atchley AE6IC and Dennis Baca KD6TUJ (President of Palomar Amateur Radio). Fred and Dennis clearly had worked on several council members as the councilors were positive about ham radio. My personal kudos to both these fine gentlemen for all their visibly hard work.

A lot of different hams spoke about separating the Amateur Radio Support Structure Regulations from the Commercial Cell Phone Regulations. Perhaps more important, a number of members of the general public, who were there primarily to oppose any cell phone towers whatsoever, spoke in favor of treating amateur radio differently than cell phones and acknowledged the vital public service of hams during emergencies.

Special Legal Counsel to the City for antenna matters, Jonathan Kramer, W6JLK suggested that changes should be made for amateur radio and looked forward to meeting with local hams to work out the differences.

Frankly, while the currently ordinance is outrageously (likely illegally) restrictive, the positive attitude towards reasonably accommodating amateur radio was a pleasant change from the hostile attitudes of Poway and the prevarications and enmity of the staff at the City of San Diego.

My only real disappointment was the utter lack of any visible support from SANDARC or our ARRL Section Manager and/or his staff.

Oceanside is the largest city in North San Diego County. How it ultimately frames its ham antenna ordinance will likely influence all the surrounding cities.

The Jury is still out... The fight is NOT over.

I am sure that Fred could use all the help he can get!!!!!"

**Fred AE6IC wrote:**

"for your comments Howard. Yes there was bad news and there was (is!) good news. Note that the OCEANSIDE CITY COUNCIL MEETING REPLAY [TAPED 10/20/10] is lo-

cated on the internet:

[http://www.ci.oceanside.ca.us/council\\_video/2010/10-20-2010\\_cm/10-20-2010\\_cm\\_ex-ph.html](http://www.ci.oceanside.ca.us/council_video/2010/10-20-2010_cm/10-20-2010_cm_ex-ph.html). Our portion starts at 3:50 or thereabouts. Also it will be aired on KOCT (Channel 19) tomorrow, Saturday 23rd and Sunday 24th.

This is my first experience with the council "general meeting". It was a sad display of egos combined with an overdose of PR. This meant that the business at hand was pushed back in time. It was past 10 PM before we finished up which for some of us old-timers was almost life-threatening. There were two low points for me.

The first was Jerry Hittleman's cheap shots. He thanked me for my efforts to improve the ordinance then proceeded to ostracize ham radio antennas. He displayed examples of commercial antennas camouflaged as a cactus and a palm tree; then displayed Kruger's ham antenna for comparison. There were audible guffaws from a small group which was obviously his intent.

The second low point was when city attorney John Mullen made his disingenuous comments that separating-out the Amateur Radio portion could not be accomplished without jeopardizing the urgent article 39. In spite of the fact that on September 30, 2010, I hand delivered a letter to all city council members concerning just such a change. Out of 732 lines, only 46 lines specifically regulate Amateur Radio antennas. All other references to "Amateur Radio" are just phrases inserted to exclude it. Obviously, the ad hoc committee's efforts to obliterate our requirements limited this content. So, Mullin had plenty of time to be prepared.

Offsetting these negatives were the numerous favorable compliments from the gallery, including the anti-cell-tower group! Other non-hams commented on the need to nurture the ham capability. Even Jonathan Kramer commented that a subsection for hams was doable. His comments pertained mostly to cell tower citing.

Many thanks to all the hams that stood up. You really did a fabulous job. The impact on the council members was obvious. They were not expecting such support. Sorry for the delay in reporting, but Lillian and I took the next day off to recuperate. (We drove up to the Edwards complex in Irvine to see a movie.)"

**Dennis KD6TUJ wrote:**

"Usual meeting timelines were kept. The 6:00 PM start time was 8:20 PM through 9:50 PM. There were two distinct sets of speakers. One for the cell phone ordinance, and one group for separat-

ing commercial from Amateur Radio (non-commercial). Comedic relief was provided by my wife calling on my cell as I was at the podium professing how people have accustomed themselves to the cell services. After I hung up, she called again. The audience was amused. After saying I would call later, The Mayor announce the she called his cell to make sure I would call her back.

Several speakers spoke for Amateur radio and stayed on point for separation from commercial services while adding good points why this separation would benefit the community. Only one speaker for the cell ordinance spoke in favor of the amateurs, as she was the daughter of a ham.

When the vote came, There was a motion to affirm the ordinance as an emergency, giving enforcement the next day. The second added a statement that "there is to be a revision for amateur radio with a review date in January to review the progress of resolution. The ordinance was affirmed with the revision provision.

After the meeting a city staff member approached me to confirm there would be public meetings as soon as November to start work on the revision."

Fred AE6IC wrote:

"Take heart.

Yesterday afternoon I recorded the replay of the Oceanside Council meeting. KOCT, channel 19, will replay it one more time tonight at 5 PM. Our portion is about 3 hours and 50 minutes into the session, so you can watch (and record) it at about 8:50 PM. The schedule is at: <http://www.koct.org/pages/schedules/24.htm> Try to watch it if you can ... you may be able to spot some nuance we can use. I did.

There, on the tape, was something I had not realized. Every single comment from the floor about ham radio was positive! The only unfavorable comments were from Hittleman (Planning) and Mullen (city attorney). Some of the comments from the anti-cell tower people and the general public were absolutely glowing. I had been so upset by Hittleman's cheap shot that I failed to realize that the people were behind us 100%! Of about 2 dozen who stood up, not one made a derogatory comment, and there were many unsolicited praises.

So far, only six people have responded to my request about their availability. The consensus is weekdays 6 PM or thereabouts.

Please send me your input.  
73, Fred , AE6IC, hamkt4fk@att.net"

# SWAT!

## Six-meter Wildass Antenna Team

by Michelle W5NYV

At the August work party, the Palomar Amateur Radio Club kicked off an effort to redesign the 6m antenna. The existing antenna has suffered some damage and hasn't been at its best over the past few years.

Several club members decided to do something about it, and have organized a SWAT (with apologies to Preston W6ASP) with the goal of completing the modeling, design, construction, installation, and testing of a new 6m antenna. Designs for the new antenna will be unveiled at the January 2011 club meeting as part of the Antenna Modeling program presented by Michelle W5NYV.



SWAT invites any and all interested club members to participate. There are two requirements. You must come up with a fancy title. Browse the list of SWAT members for inspiration. The second thing that you need to do to participate is to model a 6m antenna suitable for use on Palomar Mountain.

There is a variety of modeling software available for free. One does not have to spend a lot of money to begin antenna modeling.

SWAT succeeds if a diverse variety of designs are submitted for consideration. If you have been mulling over antenna modeling, or casting about for a reason to play with modeling software, then this may be the perfect project.



*Here we are!  
Join us and  
have some fun  
fixing up the  
6m antenna for  
PARC!*

### SWAT Members as of November 2010

**Captain Cynthia KJ6HCT**

**Colonel Rob KJ6RET**

**Empress Michelle W5NYV**

**Tentative Titan Mark Raptis KF6WTN**

**<your name and title and call here!>**

Palomar Mountain has ice during the winter, so durability is a primary concern. The mast that supports the antenna is raised and lowered by hand-operated winch. It's a steel tubular telescoping crank-up mast with a tilt-over base, and is about 25 feet tall.

To participate, mail a quick note with your name and SWAT title to [board@palomararc.org](mailto:board@palomararc.org) and we'll be in touch with you to assist and collaborate. This is an opportunity for fun and learning. Any level of experience with antenna modeling is welcome.

### Free Antenna Modelling Software To get you started

**Download free version of Expert MININEC Classic by following the link at <http://www.emsci.com/>**

**Free version of EZNEC (limited to 20 segments) available at <http://www.ez nec.com/>**

**Have a Mac? Try the free cocoaNEC 2.0 <http://homepage.mac.com/chen/w7ay/cocoaNEC/Contents/Downloads.html>**

**Or, embrace your inner geek and run raw NEC. It's free. Read more about it at <http://www.nec2.org/>**



Dave WA6CGR tests so fast that his hands blur. Here he is in the temporary test lab set up for attendees to use to make measurements they may not be able to make at home. A lot of microwave gear is prohibitively expensive for the microwave enthusiast to purchase. San Bernardino Microwave Society operates a lab for use by the Southern California amateur microwave community, and hosted the lab at Microwave Update 2010. Photo by W5NYV.

a quick and productive dialogue about the approach to limiting power levels between Dr. Nguyen and Kent WA5VJB.

A banquet, with numerous awards and over 1000 prizes, was held Saturday evening. Yes, that's right, there were over 1000 prizes. Everyone at the conference was almost assured of walking away with multiple prizes. All you had to do was show up at the banquet. The more persevering banquetees stayed up to claim the last batch of prizes at 9:45pm. The final auction was for a cake made by Tisza KI6DBR expertly formed in the shape of a Yaesu 817. The grand prize, a portable spectrum analyzer (an Agilent N9430B), was won midway through the evening by a very joyful Jeff Fort KN6VR, a member of the San Bernardino Microwave Society. The guest

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Kent WA5VJB demonstrates a purple laser pointer on a defenseless backpack. Kent then illuminated the EXIT signs. Photo by W5NYV.



At left Pat N6RMJ, The chair of Microwave Update 2010. At right, Michelle W5NYV. Pat and Michelle partially disassemble a 3GHz rig for testing that Michelle bought from Pat at the conference. The rig passed "tech" with flying colors. Photo by KB5MU.

*continued from page 5*  
 offered to give his talk about Ultra Wideband CMOS Antenna and Transmitters. Expecting a crowd more similar to an industry group composed of people paid to be interested in this sort of work, he was astounded to find that everyone in the room passionately pursues microwave radio engineering as their hobby. His talk was well received, generated several questions from the audience, and there was



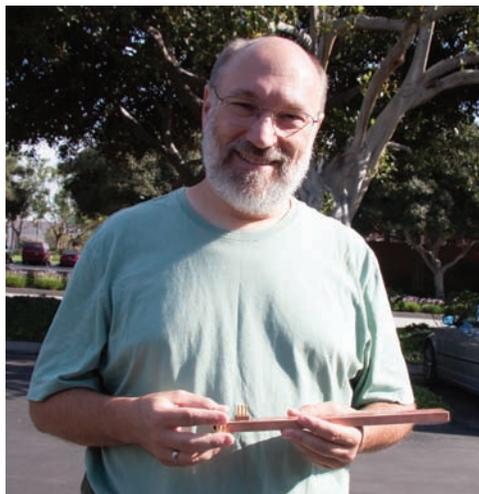
From left, Kerry N6IZW, Ed W6OYJ, Lee KD0IF, and Greg K6QPV. These members of the San Diego Microwave Group headed up the antenna range test. Note that Ed is writing down something very important on a cocktail napkin. Photo by W5NYV.



Mel WA6JBD staffed the front table of the temporary test lab at Microwave Update. Thanks to Mel and Dave for providing such extensive test capabilities. Photo by W5NYV.



Above, Microwave Update 2010 concludes with the 1000-prize-banquet. A cake, shaped and decorated to look like radio equipment, was cut for dessert. This work of art was handmade by Tisza KI6DBR, who also chaired the extremely successful and highly popular family program. Below, Pat N6RMJ and Phyllis Kolbly, wife of Dick K6HIJ (SK) cut the cake. Photos by W5NYV.



Above, Paul KB5MU now has two antennas on 10GHz. This one is an omnidirectional slotted waveguide antenna, suitable for mobile use. Photo by W5NYV.



Below left, the antenna range test team on the roof. Below right, the team down in the parking lot with the measurement gear. The device under test reported to the parking lot, and was connected to the test system. Photos by W5NYV.





Michelle W5NYV attempts to operate the 10GHz slotted waveguide omnidirectional antenna at audio frequencies. More research will be required in order to achieve this band. Tony Long KC6QHP looks on in amusement. Photo by KB5MU.

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speaker, Dr. Kate Hudson of JPL, talked about California earthquakes, compared and contrasted the January 2010 earthquake in Haiti to the May 2010 earthquake in Chile, and discussed the motivation for and participation in the Great California Shakeout.

Sunday morning was antenna testing, headed up by Kerry N6IZW and Lee KD0IF. The far end of the antenna test range was on top of the hotel looking down into the parking lot and was managed by Greg K6QPV and Ed W6OYJ. The other side, with the measurement equipment, was set up in the parking lot, along with the public swap meet. I was able to test my new-to-me 3GHz and 5GHz rigs, which I had purchased at Microwave Update from Pat N6RMJ. The rigs had been tested the day before in the dimly lit indoor lab that the San Bernardino Microwave

Society had set up for the conference. The lab was able to test for frequency stability, conversion gain, power, and output spectra. Now, backlit by the gentle warmth of the sun on a beautiful October Sunday morning, the rigs were tested for antenna gain. The only troublesome result was the 5GHz dish gain being lower than expected. The consensus of the antenna range team was that the feed should be investigated.

## Carlsbad Amateur Radio Exam Updates

by Paul KB5MU

Since the FCC turned over amateur radio exams to volunteer examiners in 1984, the Palomar Amateur Radio Club has sponsored and supported one of the local teams of volunteer examiners, which provides a scheduled exam session on the second Saturday morning of just about every month in the north county. These exams are held in the same room where the club meets, in the Carlsbad Safety Center, and are coordinated by ARRL VEC. The schedule is aligned with SANDARC-VEC sessions held in other locations in San Diego County, so that exams are scheduled on every Saturday somewhere in the county. Additional exam sessions are scheduled as needed when there's a license class or a convention in the area. How many other parts of the country have this much access to exams?

Detailed information on the Carlsbad exam session is available at

<http://www.kiloxray.com/vec/>

or via a link on the club's web page.

The Carlsbad VE team has made it easier than ever to register for the exam. There's now a very simple online form to fill out, and the system automatically acknowledges your registration. On the session's web page, you can see the roster for the next upcoming session. You can confirm that your registration is on the list, and you can see how many others are signed up. This is nice to know, since if fewer than three candidates pre-register, the exam session will probably be canceled. Registrations are also accepted by email or telephone, as an alternative to the web page form.

Special Notice: I've been working on revamping the collection of photographs on the club's web page. Instead of a mishmash of different presentations and links to off-site collections, all the photos are now displayed in a unified photo gallery driven by the free software package Zenphoto.

You can find the new photo gallery under "Look at Us" on the club's web page. - Paul KB5MU

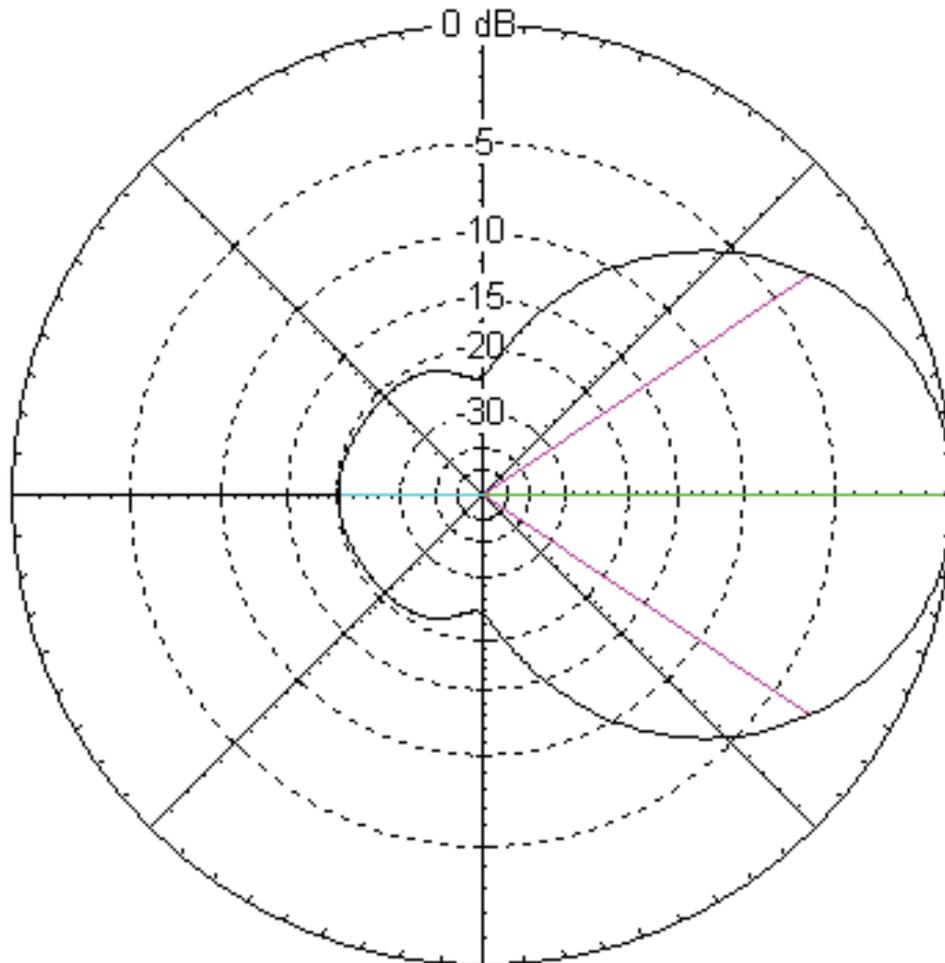
<http://www.PalomarARC.org>.

# 20m Field Day Antenna Design Documents

by Mike Lebo N6IEF

## Total Field

EZNEC+



14.2 MHz

Azimuth Plot  
Elevation Angle 19.0 deg.  
Outer Ring 12.46 dBi

Cursor Az 0.0 deg.  
Gain 12.46 dBi  
0.0 dBmax

Slice Max Gain 12.46 dBi @ Az Angle = 0.0 deg.  
Front/Back 20.28 dB  
Beamwidth 67.8 deg.; -3dB @ 326.1, 33.9 deg.  
Sidelobe Gain -7.82 dBi @ Az Angle = 180.0 deg.  
Front/Sidelobe 20.28 dB



*To be continued! More design documents from this 20m Field Day antenna project will run in the upcoming Scopes.*

*At right is the antenna modeled in above.*

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

### Featured Program:

At 7:30pm, Palomar Amateur Radio Club will host a program at the monthly membership meeting on 3 November 2010. The presentation will be on 160m Antennas by Gayle Olson K6GO. Arrive at 7:00pm to socialize. We look forward to seeing you at the Carlsbad Safety Center, 2560 Orion Way, Carlsbad, CA.