



SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1955

A NON-PROFIT AMATEUR TECHNICAL ORGANIZATION DEDICATED  
TO THE ADVANCEMENT OF COMMUNICATIONS ABOVE 1000 MC.

## SBMS (W6IFE) Newsletter For November 2013

### Activities of the San Bernardino Microwave Society

#### Tech Talk for the November 7<sup>th</sup> Meeting

*You can generally find Dennis on 3870 kcs hanging with the West Coast AMI crowd. His hobby within a hobby is Collins gear but you will find Dennis to be experienced and knowledgeable about all aspects of ham radio. His interests go beyond that to sound, cameras and electronics in general. His contribution to future generations is the “maker” movement such as his participation in the 2012 Maker Faire in San Mateo, CA, with “Not Your Grandpa’s Ham Radio.” The idea is to present new amateur radio technology from microwaves to microcontrollers.*



the October Business Meeting

Important  
Points of

President Chris Shoaff Welcomed Kenneth (K6HIJ) and Phyllis Kolbly to our meeting. One of the most important members of the SBMS is Dick Kolbly who passed away, in September 2010. He was father to Ken and husband to Phyllis.

## **Old Business**

- On the 10 GHz Beacon being considered for a gift to Mexico, Miguel was asked to come.
- There was strong sentiment led by Mel, against Walter's urging to spend the money we earned from the 2010 MUD. Pat said making it makes it more of a "club" project. This may become available through member Tony making a prototype beacon that he would like to sell as a kit someday.
- Wayne led a discussion on a point raised by ARRL's David Sumner about the FCC someday counting activity on the UHF and microwave spectrum. His point being that beacons show activity on bands.
- Brian talked to Bernardo; the Mexican 10 GHz user. It seems the one he had is stranded.

## **New Business**

- Dennis Kidder W6DQ shared with us the progress on "Not Your Grandpa's Ham Radio," at the Maker Fair in December 7 at Del Mar.
    - Wayne Yoshida, KH6WZ, has submitted an application to the San Diego Mini Maker Faire
    - Palomar Amateur Radio Club may participate
    - Our sister club in San Diego Microwave Group may participate
    - Members of SBMS who may participate include Wayne, Dennis Kidder, W6DQ, Walt Clark and Tony Long, KC6QHP. Trip on a train may be involved
  - Our sponsoring of MUD 2015 was discussed and Pat expressed interest in leading it again.
    - Jeff Fort (Corresponding Secretary) will submit the application.
    - It is widely recognized that Gary Hester's TV capability is a notable feature of SBMS sponsorship of MUD.
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# What Our Members Are Working On

- **Ed Munn W6OYJ**
  - One highlight of the recent 10 GHz and up contest is that new hams were quite successful.
  - His original plan was Mount Laguna but a fire forced him to another peak.
- **Courtney Duncan N5BF**

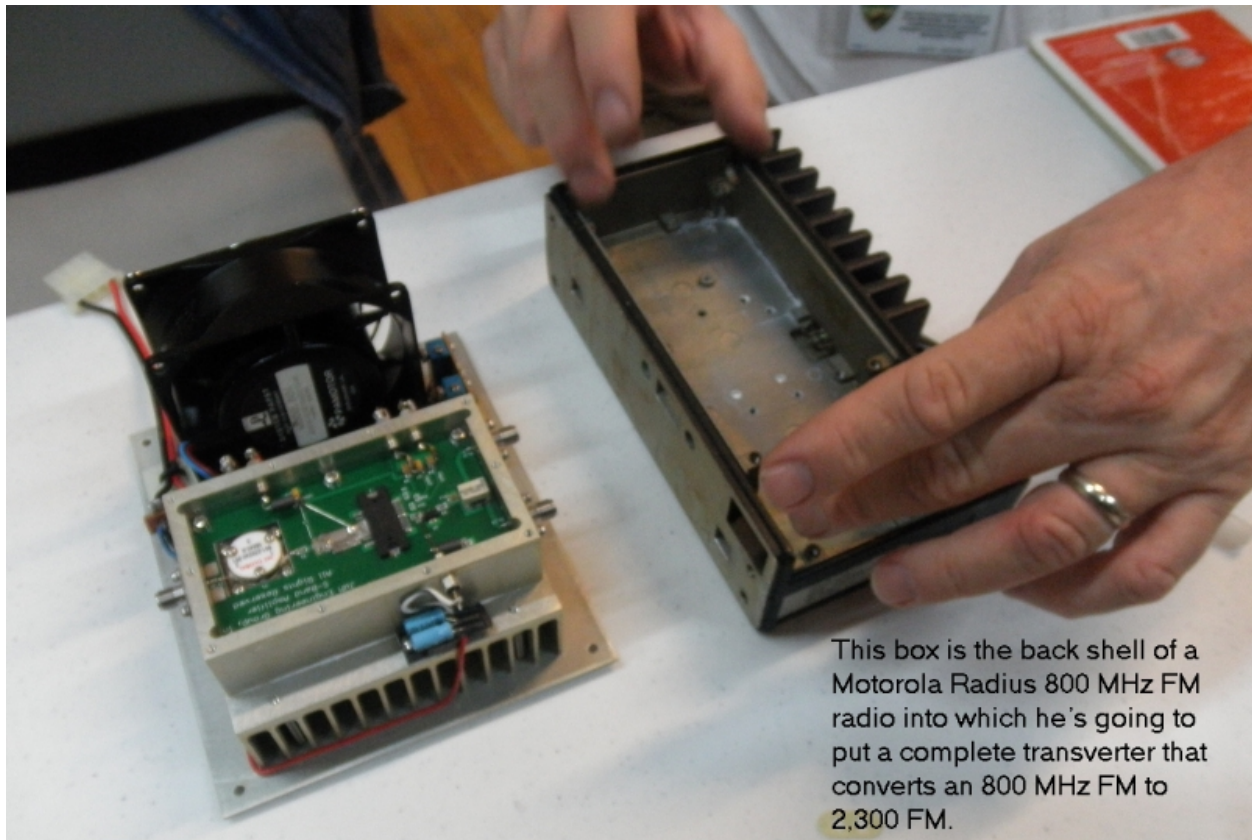
reported his results of the contest: 17,000 points.
- **Dennis Kidder W6DQ**

talked about his use of the Fieldfox and that of Dan Slater.
- **Wayne Overbeck N6NB**
  - Wayne Oh Deed on ham radio at the two contests that ran at the same time. He made contacts on 10GHz, UHF and VHF.
  - He was with Chris Shoaff and had a lot of fun on 24 GHz at Signal Peak, and Angeles Crest. He's ready for a break from contesting.
- **Jeff Fort KN6VR**
  - wasn't involved in the contest but monitored the events on Cactus.
  - He is working on a lighter, more portable version of his 10GHz rig and is anxious to compare his light and heavy dishes in performance to see it is still worth the effort.
- **Jason Soyolow W6IEE**

is still playing with dongle and RTL TCIP software. He made the observation that a fast network allows lousy computers to work well.
- **Don Hill KE6BXT**
  - This last month he worked on HSMM-MESH, Broadband-Hamnet in both Las Vegas, NV and Mission Viejo, CA. He produced two videos about adding a web server to a mesh node and adding a telephone to a mesh node.
  - On the Sep 25 episode of Ham Nation they ran that video about the DATV QSO Party and the ATN website (<http://atn-tv.org>) was featured as the club website of the week.
- **Charles Cooper M5RJK**

participated in his first contest. He wished to thank Dan Welch and Doug Millar.
- **Dan Welch W6DKW**
  - delivered the parts he made for the Fox M1 Satellite
  - He's fixing his high speed spindle for his antenna manufacturing facility.
  - Still taking orders for the 10 GHz antennas
  - The 24 GHz antenna is not ready for production yet. (Dennis W6DQ volunteered to use the FieldFox on it to assist the placement of the tuning screws.)
- **Frank Komann A6GQV**
  - AT the 10 GHz test in August he was forced to use LSB instead of USB. It turned out that his radio had a bad diode (1N4148) used to provide power to the microphone. This has been fixed.

- During his trip to Denmark he visited his old VHF contest group, 5P5T (<http://5p5t.dk>). He was not here for the entire test but it looked to him that they wanted to do more than 900 QSO's on the 2m band. They used four antenna systems. Three 8 by 3 elements in a fixed direction and one 4 by 10 element on a rotor.
- **Brian Thorson AF6NA**  
Frank and Courtney were with him at Signal Hill on SSB. He had feedhorn problems which he fixed.
- **Jerry Mulchin N7EME**
  - is working on converting 800MHz Motorola FM radios for use at 2300 MHz as repeaters, Mobil radios, and control links.
  - The Power Amplifier he's designing puts out 25 Watts at 39% efficiency at 2391MHz. The hope is that he will be able to design a complete 2300MHz transverter to fit in the back end of a Motorola Radius 800MHz radio chassis.



- On the left is the Repeater Transmit converter he built.
- **Mel Swanberg WA6JBD**

- Operated a smaller dish for the September contest weekend for a five minute setup. His best DX was 672 Km, in August, from Potosi to Bald Mt.
- Worked on a 2390 MHz Repeater (NBFM), using 45 MHz Motorola commercial radios as a transverter IF.
- **Pat Coker N6RMJ**
  - Pat noted a 30% drop in activity at the contest from last year. 68 last year, only 49 this year. 40,400 points.
  - He also worked on some of his VHF antennas and got his HF beam up
- **Larry Johnston W6HLH**
  - had a little heat problem on his 10 GHz rig.
  - He has to lower his tower to fix or add a 1296 loop Yagi.
- **Rein Smit W6SZ**  
worked a few in the contest but what was of interest to him was catching bounces off of Palos Verdes. See article below
- **Chris Shoaff N9RIN**  
got half the QSOs he normally gets.

## **Members and Guests Watching on line by way of Gary Heston's ATV Mobile Studio (Gerald Heston W6KVC, Blue Jay California)**

Don Hill had trouble holding the repeater but was able to copy for us the activity watching over the air.

- Live from Oat Mt. WA6EJO and Santiago KE6BXT
- 

Here are the call signs that were in the BATC Chat room

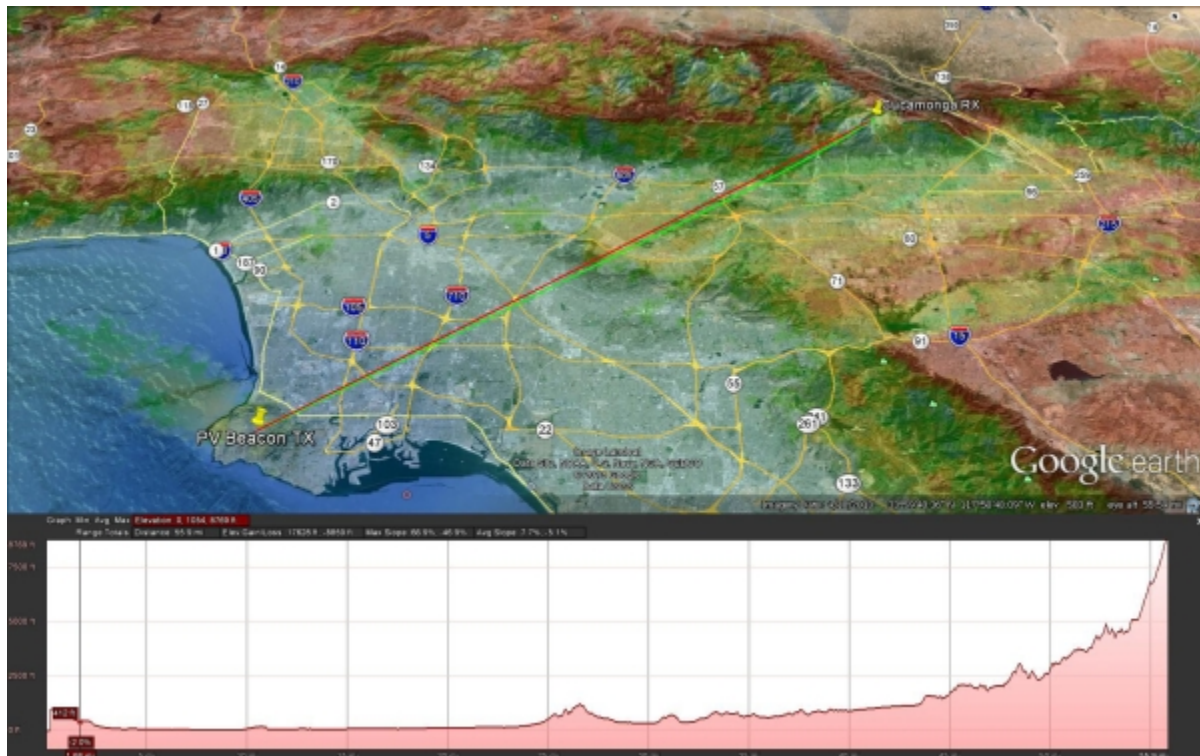
- KE6BXT
- KQ6EF
- WA6EJO
- WX6DX
- K4QD

## **Here's an Interview with Rein Smit W6SZ on Reflection Contacts**

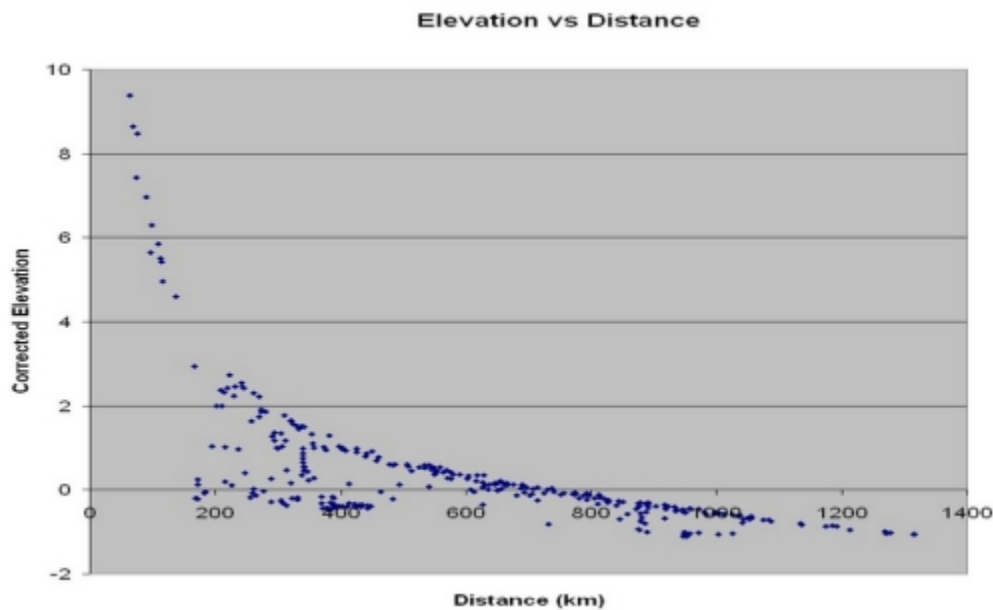
Rein, worked a few stations from his house during the contest using the reflection points of the mountains north of his home. For some time he has been using mountain bouncing techniques (reflection points) to reach hams in San Diego and Orange County. One very interesting observation is that he can hear the Frazier beacon, with different signal strengths at least 80% of the time. The path is from Frazier, to Palos Verdes, to the mountain north of him. (Rein's QTH is Cucamonga just north of the 210.)

Some time ago, Rein observed that when AF6NA (Brian Thorson) was at the coast in Santa Barbara, his signals could be identified (again from at Rein's QTH) with two bounces. The big event for Rein during the contest was actually at the end of the contest with the activity level down. W6YLZ, (Michael H Ramirez) located at Frazier Pk, found time to sweep his beam slowly in the general direction of Palos Verdes so Rein could log his carrier. He found a strength of 30 dB above the noise. It is important to note that this contact was from Rein's home. (Ramirez was running 10 W and a larger dish than Rein's.) Rein really appreciated Michael Ramirez (W6YLZ) doing that sweep. Rein had expectations that communication should be possible over that bounce trajectory but he has never be able to find a station at Frazier with time to do the experiment.

Rein would like to see more efforts in this area using bouncing. Using waterfall detection and DSP modes, many more contacts should be possible in the basin and beyond which should encourage more of you to do home to home.



## Here, from Roger Rehr W3SZ of Reading Pennsylvania is an Introduction to his Aircraft Scatter Software Tools.



A bit more than a year ago I posted to the Microwave Group Email List regarding a program I wrote to assist with aircraft scatter. That program was written in visual basic and worked with PlanePlotter as a front end.

A few weeks ago I uploaded to the web a replacement for that program. The new program is written in C# and does not use a front end, but rather downloads plane data directly from an internet plane server (or from a local RTL1090-based plane server, or from both).

That program, a description of it along with some instructions for its use is available at:

<http://www.nitehawk.com/w3sz/AircraftScatter.htm>

The program should be considered beta software. It has been installed and has run without problems on more than 10 machines. It has been tested on both 64 and 32 bit versions of Windows 7 and on Windows XP 32 bit version and runs fine on those. It is not tested on, is not intended for, and will not be supported on other operating systems.

Also available at the same website are slides from a lecture I gave on Aircraft Scatter. Here's a direct link to the pdf: <http://www.nitehawk.com/w3sz/W3SZ-NEW-AirCraftScatterPackRats2013.pdf>

Any feedback would be appreciated. [73w3sz@gmail.com](mailto:73w3sz@gmail.com)

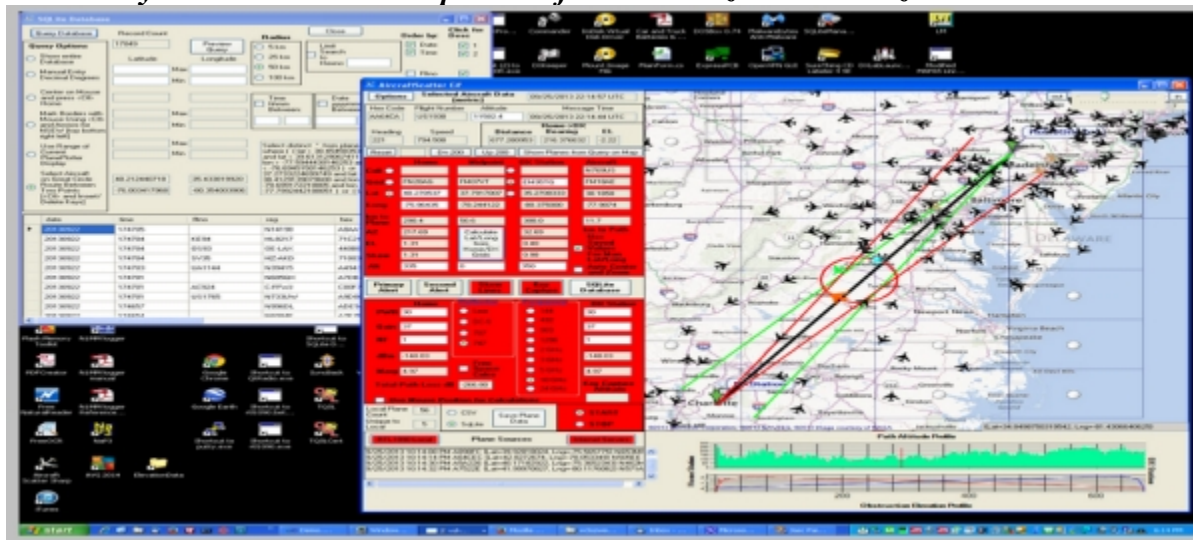
### The new program provides:

1. Real-time plane position information capture and display
2. Display of the direct path line between two stations, along with skew lines to allow a quick assessment of the angular deviation of an aircraft position from the direct path line for both stations, and a midpoint circle to show when an aircraft is within a specified distance from the midpoint of the path. Path altitude and elevation/obstruction profiles are also shown.
3. Highlighting of aircraft near the ideal position for "reflection", based both on distance from the midpoint of the path as well as angular deviation from the path.

4. Real-time calculation of path loss/received signal at both locations based on plane location and user-adjustable station parameters
5. An integrated SQLite database that allows you to save information on all planes appearing on your screen for however long you want [minutes, hours, days, weeks, months] and to then analyze that data to determine when aircraft scatter opportunities will most likely appear. You can analyze the data without interrupting its collection, and powerful SQL search functions are automatically included and easily selectable using only mouseclicks to generate the SQL query statements.

73,

***Licensed since 1968, Roger Rehr's interests include 144 MHz EME and new receiving techniques including software defined radios, as well as weak signal VHF/UHF/Microwave. He is ready to receive the entire spectrum from 50 MHz thru 24 GHz.***



## Tech Talk for the October Meeting

Jim Lux, W6RMK, drove all the way out to us (Corona) from Thousand Oaks to talk about the FINDER, the microwave victim detection system developed by JPL for the Department of Homeland Security.



He is Task Manager for the FINDER project at JPL. He is also an active ham, and interested in high voltage, tornados and amateur deep space detection. You will see him often on the email group [amateur-DSN@yahoogroups.com](mailto:amateur-DSN@yahoogroups.com) (Here's an interesting video on this project:

<http://www.nasa.gov/centers/jpl/news/finder20130925.html#.UnV3RxBV2kA>)



## Upcoming SBMS Meeting Tech Talks

- **Dec.** Doug, Tony, Bill, Steve: 79 & 122 GHz Radio symposium and demo.
- **Jan.** Dennis Kidder: History of Receivers part 2
- **Feb.** Marty Woll: Contesting techniques.

For information on other events... see "Activities" in the SBMS website, which, you should have memorized by now

- Google then SBMS
- click on our website
- then Ctrl-F

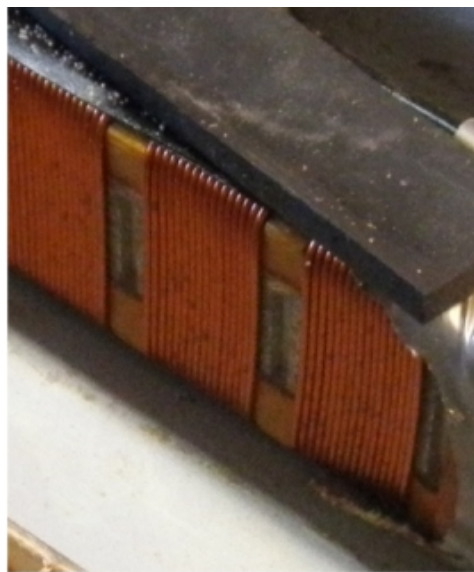
## Microwave Challenge of the Month



This is clearly an X-band antenna by the looks of the waveguide. There is a flare pointing to the left on the bench here. (The top of that half-horn has been removed and resting in front.)

There's a phenolic honeycomb window protecting what looks like a series of coils (spaced 15.2 mm apart) wrapped around a waveguide of unknown material.

The challenge is: why is the window a structure instead of a single pane?  
And why the coils?



Submit your ideas to the SBMS reflector. [sbms@ham-radio.com](mailto:sbms@ham-radio.com)

### Needs, Wants and For Sale

**For Sale:** 30w 1296 MHz PA kit \$50 + \$5 for US shipping Chris Shoaff, N9RIN  
[cshoaff@yahoo.com](mailto:cshoaff@yahoo.com)

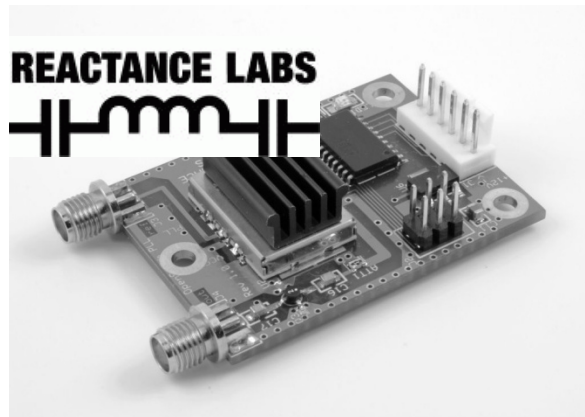
**For Sale:** 10 GHz slotted waveguide antennas \$55 kit, \$80 assembled plus shipping Dan  
W6DFW [W6DFW@apex-scientific.com](mailto:W6DFW@apex-scientific.com)

**Need-** HP 8694 8-12 GHz sweeper plug-in for 8690 main frame Chuck WA6EXV  
760-382-0709

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## Member Ads

**60 degrees North Electronics Company.** I am starting up a kit making service for assembling certain kits made by Down east Microwave. For those that do not want to make their own kits or maybe it's gotten too difficult, or just don't have the time or want assembled kit faster than DEMI can supply it. This one-man business so I will only be able to build a limited number per month. My price is the same as offered by DEMI assembled, plus shipping which should be medium-size flat-rate priority mail in the US. I am expecting to be able to deliver within 30 days of receipt of paid order. Contact Ed Cole: <http://www.k17uw.com/60NE.htm>



Introducing the **OpenSynth** line of frequency synthesizer kits. Available in standard frequencies of 2556, 2952, 2160, 1152, 3312, 3006 MHz, also available from 400 MHz to 3500 MHz.

- Low phase noise, Buffered output
- Ultra low noise voltage regulators
- Open Source code and design, made to be modified
- 2" x 1.5", 12V @ 140 mA typical

Available at <http://reactancelabs.com>

## About SBMS

The San Bernardino Microwave Society is a technical amateur radio club affiliated with the ARRL having a membership of over 90 amateurs. The focus of the club is microwave activities in the Southern California. ***Our sister club is San Diego Microwave Group (SDMG). At least one meeting a year are joint meetings.*** SBMS dues are \$15 per year, which includes a badge and that's about it. The dues are more in the way of a donation to pay for outreach things such as video portals, a bank account, and rent for the building. When to pay is not a matter of remembering. The Corresponding Secretary will contact you by email and will then hound you like your own personal PBS telethon. Dues can be handed to the treasurer at the meeting, or mailed to the address of the treasurer listed in the banner below.

Meetings are first Thursday of the month, 7:00 PM at the American Legion Hall, Corona. For carpooling from North Orange County call Walter Clark @ 714 882-9647

### ***The Reflector (SBMS Group Email)***

The most active method of information exchange is our group email called the SBMS Reflector. You don't need to be an SBMS member to participate. To subscribe fill out the form at the website: <http://lists.altadena.net/mailman/listinfo/sbms> (If you are getting email on the SBMS Reflector now, and you want to write your own message, pull up a recently received message, click on "Reply to List." Don't forget to change the subject line and delete all previous text as appropriate.)

### **The SBMS Website and Newsletter**

The SBMS Reflector is ephemeral. There's no record kept. The Newsletter has a slightly longer life. It is sent to members and past issues are recorded in the website. It's URL is: <http://www.ham-radio.com/sbms/> You don't have to memorize that or write it down, just enter SBMS into any internet search engine.

**Newsletter: Walter Clark:** [walterClark@roadrunner.com](mailto:walterClark@roadrunner.com)

**Website: Rein Smit:** [rein0zn@ix.netcom.com](mailto:rein0zn@ix.netcom.com)

The newsletter is created about the middle of the month and broadcast as a link inside an eMail letter to the members. This is mailed to you on the weekend prior to each meeting. SBMS Newsletter and website material can be copied as long as SBMS is identified as source.

## **About the San Bernardino Microwave Society (SBMS)**

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