



## 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 March 2013

The **March, 2013 SBMS meeting** will have a talk by Dennis Kidder, one of our own SBMS members and a member of just about every ham club in the state. The talk is on his experience with Maker Faire and how we can extend the hobby to young people. Not only are they introduced to a potential hobby, but they also see an aspect of technology that they normally don't get to see.

## Activities of the San Bernardino Microwave Society

Based on Notes Taken at the Meeting of 7 February 2013 in Corona

### Guests Or Members Not Seen In a Long Time

- Chuck Olive N6EQ (Oak Hills)
- Berry Malowanchuk VE4MA(Canada and Arizona)
- Greg Bailey K6QPV (San Diego)
- Steve and Genny Grudzinski AD6HT and AJ6CW (Lake Elsinore) They are both Disaster Communications Service and both are VEs.
- Chris Frie
- Luke Stankiewicz KJ6TPG

### SBMS Beacon Projects

#### The 10 GHz Standard

This project involves multiple 10 GHz beacons which will have state of the art stability and noise. The first unit will probably be at the SBMS mount at the Owens Valley Radio Observatory. It will be used to illuminate the moon when it is above the horizon so that the moon will be a beacon for just about anyone in the world. It will of course be removed while anyone is there to do EME.

- Dr. Mark Hodges (staff to OVRO) says the control panel that is in the trailer next to the mount needs repair, Dennis, Robin and Chuck will look into what that means
- Mark (of OVRO) requests a proposal be written so that OVRO can point to a documented use for that mount. Doug volunteered to write it.
- There were many dishes being offered for that mount. It appears that we are settling on the 10' dish Chuck has. (The main advantage is the ability to get it there. It can be taken apart and put together.)
- There was about 5 minutes discussion on other dishes available and whether we want a Cassegrain, conventional coaxial or offset.
- An offset dish was offered by guest Berry Malowanchuk.
- Doug invited us to an OCA star party on June 8<sup>th</sup>.
- June 22<sup>nd</sup> Doug will be taking some OCA members and some teachers to OVRO to tour the dish and if there is interest, to hear a lecture on SDRs for radio telescopes and the 40 meter dish.
- OVRO Schedule: first the visit to see what about the control panel needs to be repaired then Doug's proposal needs to be approved by OVRO. It is estimated by Doug that the next major activity will be late summer.

### **The 24 GHz**

This is a one-up project for Johnstone Peak north of Gendora.

- Mel soldered up a synthesizer from Tony and donated a 2 watt 24 GHz amp
- Doug Millar and Dave Glawson volunteered to take it from there.
- Mel will find a weatherproof box for it
- Dick Bremer will provide the antenna (one of Dan's)

### **Members and Guests on the Aether**

Garry couldn't make it because of that bad cop holding out in Big Bear. So to remind the members that ATV uses microwave, here's a picture of member Don Hill's dual band dish for mobile ATV. Notice the copper feed loop added to a stock 2.4GHz



antenna for the 1.2GHz. Like Gary's antenna outside our meeting place, the 2.4 GHz is for transmitting to Santiago and 1.2GHz is for receiving from Santiago.

## Tech Talk of the February Meeting

Representatives of Rohde and Schwarz (Jim Lukes and Judy Pourazima) gave a talk on their line of oscilloscope which combines frequency counter, spectrum analyzer and PC. In fact the generic for them is no longer oscilloscope but "Signal Analyzer."



## What Our Members Are Working On

### Dick Bremer

announced new products from Power Works: a 12-to-32V to 5V 3A converter



### Ed Munn W6OYJ

gave a talk to the Quarter Century Wireless club on the Portugal to Cape Verde microwave world record attempt. (The same talk he gave to us several months ago.)

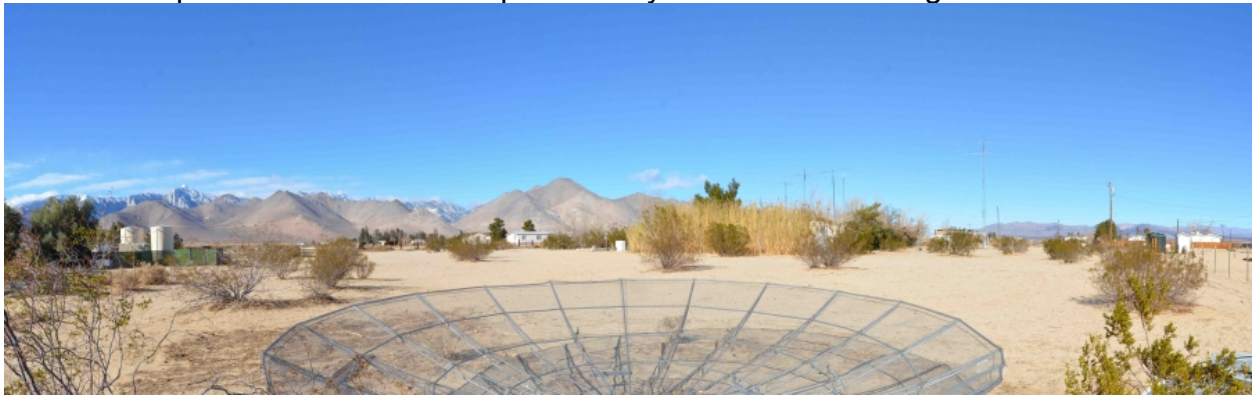
**Berry Malowanchuk ve4ma** (See Below)

### Greg Bailey

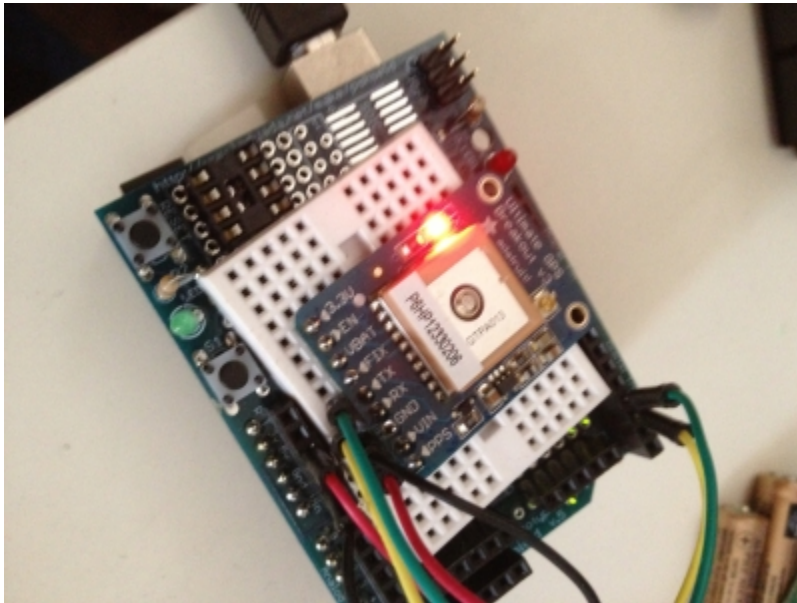
is mentoring two people in electronics and thanked Gary for the TV coverage which is actually part of the curriculum.

**Dennis Kidder**

is back on the air but from Inyokern, his new home which he is in the process of moving to. Here's a panoramic of Dennis's place in Inyokern. Note the angle to his horizon.

**Pat Coker (n6rmj)**

is working on putting his 10ghz omni at 55 foot. We'll see a picture of it next month.

**Jason Woldseth K6IEE**

Had an interesting question about being able to receive GPS during the day inside the house and being unable to receive GPS inside the house at night. Dennis was the only one to suggest an answer. (This is where the SBMS Reflector would serve.\*\*)

To the right is the GPS unit using a "real" Arduino. It's got an on-board USB-to-serial. For more on the board:

<https://www.adafruit.com/products/746>

He's using an entirely optional "Arduino prototype shield" that can be sourced for a coupla bucks, with breadboard, from China on ebay. His Arduino of choice is the \$12 Diavolino kit: <http://shop.evilmadscientist.com/productsmenu/tinykitlist/180-diavolino>

**Marty Woll N6VI**

reported that the draft 5- and 10-GHz national band plans have been submitted to ARRL, and they should be published for comment this spring.

**Wayne Overbeck N6NB**

Wayne joined a group of rovers in East Texas for the January VHF contest and worked the K5QE superstation on all bands through 10 GHz from six different grid squares. He used his new tower trailer to get all of the antennas up above local obstructions. K5QE (also on a tower) was LOUD on 2.3, 3.4, 5.7 and 10 GHz.

To the right is Wayne's tower only halfway up. This was taken in the center of Texas (EM21) where he worked K5QE on a 50-mile path over flat terrain, on 10 bands (50-10,368 MHz).

**John Oppen**

Is welding up a support for a 10' dish. John said in a later exchange that the support is made of 4" OD post 5' tall with 3" square steel legs, 2' long. He made the post and legs but still needs to make the diagonal braces. It is designed for his current 10' dish but can support a larger dish if he decides to upgrade some day.

**Courtney Duncan (pictures below)**

made 8 contacts in January on 1.2 GHz. Somewhere on his workbench is his latest project. The physics of EM waves forced his antennas to look a lot neater.

**Doug Millar**

is working on his 2' dish with transverter for 10 GHz. Doug brought two expensive CW keys. One was a Palm Paddle; probably the lightest and most practical for our kind of

operation. It is available at :<http://www.palm-radio.de/english/english.html>. It telescopes together to protect it when you are not using it and it has a magnetic base, so it attaches to the radio. The other key is a Begali Traveler. It is much heavier and larger than the Palm. It uses a magnetic return and has a very solid feel and works well at high speed. It also folds up for protection. It is a much better key and more expensive than the Palm. [http://www.i2rtf.com/html/traveler\\_light.html](http://www.i2rtf.com/html/traveler_light.html).



### **Bill McNally**

is on the air on 23cm. He worked in K6TSK on the Friday net on 1296.1 MHz. He also heard Larry, Courtney and a station in Santa Barbara. That's Bill's antenna to the left here.

### **Jeff Fort**

took his 1296 rig to John Klewer of Placentia and he did his magic. It's up and running again.

### **Rein Smit W6SZ**

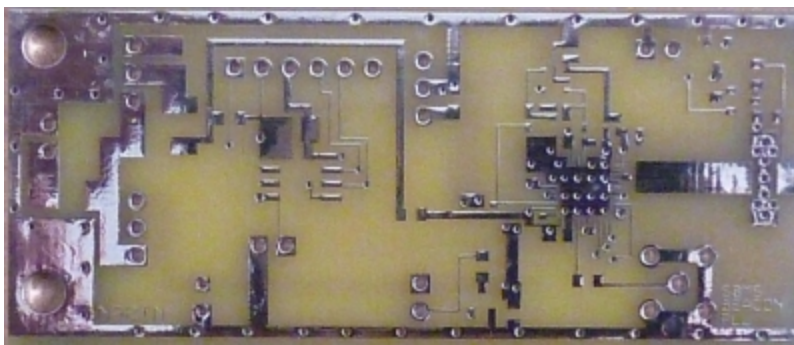
made a 10 GHz QSO with Brian AF6NA while Brian was giving a 10 GHz presentation in Riverside. W6SZ was in DM14ed and used the mountains north of him, to beam his SSB signals in AF6NA's direction.

### **Brian Thorsen AF6NA**

was at the Quarter Century Wireless doing a 10 GHz demo with Rein bouncing off of a mountain. The meeting was in riverside at Flow's farmhouse cafe on Van Buren. He used his "Barstool 3W" rig for the demo.

### **Larry Johnston**

got his 10 GHz rig working on the bench and it is ready to be elevated on his tower.



### **Chris Shoaff**

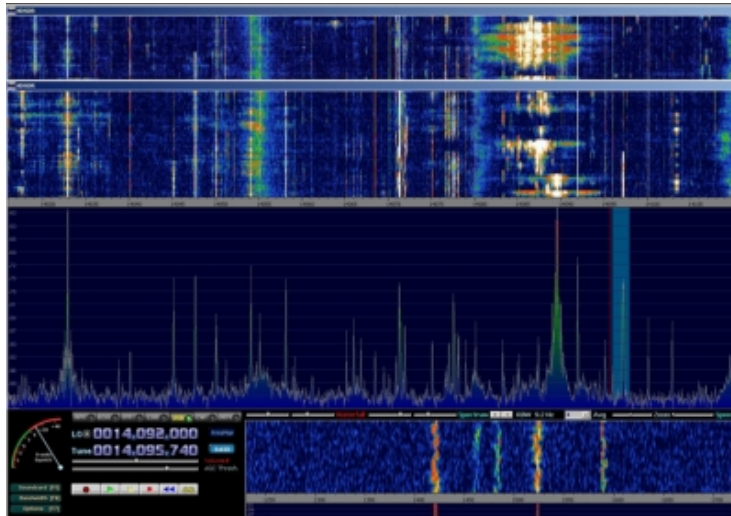
updated the PC board for the oscillator of the "Standard 10

GHz Beacon” He will start building up another prototype board when they come back from the board house.

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\*\*Don't forget everyone: submit microwave ham question to [sbms@ham-radio.com](mailto:sbms@ham-radio.com). More than 80 people will see your question. (To sign up for this service see below.)

## SDR Activities at SBMS



Here Rein captured some action with his WSPR mode software and an \$18 dongle. (20 meter band: 14.0956 MHz )

He used a commercial upconverter to go into the Dongle thus extending its range down to the HF region. The software is called HDSDR running on an old XP computer. That's free. (Use Google with key word "HDSDR".)

In the bottom filter window, frequency display 1250 - 1700 Hz, 4 strong WSPR signals are visible

as well as a relative weak WSPR signal.

The WSPR tests done on 10 GHz by N3IZN and W6SZ a while ago, would basically look the same with the this setup. Connect stand alone dongle to IF channel of IF radio for 10 GHz transverter ( for 817, 68 MHz IF )

Larry Johnston made his own up-converter in the true spirit of ham radio. He showed it off to us at the January meeting. If you want to instead buy a commercial unit, your membership to the SBMS won't be taken from you. In fact, here's a website for one:

<http://code.google.com/p/opensdr/wiki/Upconverter>.

## What Barry Malowanchuk has Been Doing Lately



Barry is our Canadian Member hence the strange call sign VE4MA. He has a winter home in Apache Junction AZ, on the east side of Phoenix in DM43fk, and will be there until April 1. He is active on 144, 432, 1296 and 10G terrestrially. He has a 24 element loop yagi on 1296 15ft above the ground fed with 160 W. He has worked Charles Olive N6EQ on aircraft scatter (complete in less than 2 minutes on sked!) He says there is a lot

of aircraft traffic in the corridor between Phoenix and LA, and it seems especially heavy at about 4 PM L.A. time. He would like to try 10GHz, and knows Charles N6EQ and Larry Johnston W6HLH are or will be capable soon. He has 8 W into a 20 dBi horn right now (intended for local QSOs only) but can increase to 100W and a better antenna if needed. He wants to work Jim Hermanek K0KFC Wisconsin who has a 30 inch dish and 3 W.

Most of his effort has been to get operational on EME with 3.4 and 5.7 GHz from AZ. He says there has been no EME on those bands. He is limited with antenna size in Arizona because he is in a mobile home park, but he has 3/8 of a 10 ft dish, operating as an offset. It works very well on 1296, and 5.7 and gives the gain equivalent of a 6 ft dish. He has been struggling with a 180 pound power supply to a Keltek TWT, and finally repaired it. He also has a Varian TWT running ~ 125W on 5.7 GHz. He recently worked LX1DB (Willi Bauer in Luxembourg) and nearly had a contact with K5GW in Texas with the moon at apogee. Gerald was 6-8 dB out of the noise and Gerald felt that Barry was just about "1 dB" away from a good contract but that a digital contact with JT65 would have been easy. Presently Barry is working on a better feedline and a better dish to pick up a few more dB.

He has been working on a new 24 GHz rig for terrestrial and for EME. This will be for the Arizona station. He has played with a 50 W Varian 14 GHz TWT and gets 100W out with 1/2 mW input. He thinks this tube may work very well on 24 GHz.

At the time of the meeting he was visiting with Greg Bailey K6QPV (San Diego) and they have been working to get Greg's 12 ft dish running properly for 10 GHz EME. Greg has been getting low sun noise and we have been narrowing in on a solution.

Go to this link to see more detail on Barry's 24 GHz EME experience:

[http://www.ve1alq.com/24GHz\\_EME\\_R3.pdf](http://www.ve1alq.com/24GHz_EME_R3.pdf)

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## SBMS Contests Coming UP

I know there are some with 2 GHz radios, but they don't get used when we have "microwave" contests. **"2GHz And Above"** is a club contest and we have had other clubs win the contest several times. The purpose of the contest is to create interest in the SBMS and other clubs in microwave. And microwave is 1GHz and above, not

10GHz and above.

### **Bill Burns**

Editors Note. Don't forget parts are cheaper, you don't have worry about trace width or snow flaking. Our own Chris Shoaff sells a 30w 1296 MHz PA kit for less than \$60. That's 50¢ a watt. And for experimenters, C-band LNBs with less than one degree Kelvin noise can be had for \$16 including shipping. That plus a \$17 dongle, and you are state of the art listener from 3 GHz to 5 GHz. Which according to Dan Slater ( our April speaker) has no end of fascinating sources.

### **In the spirit of stimulating activity in "all" microwave bands, the San Bernardino Microwave Society (SBMS) is sponsoring a 2 GHz and Up Club Contest.**

For this year, the 2013 contest period runs from 6 a.m. Saturday May 4 to 8 p.m. Sunday May 5 local time.

For more on this Contest... on OUR contest... on our SBMS CONTEST see the SBMS website. You should have it memorized by now. . .

Google then SBMS, click on our website, then Ctrl-F and "Activities"

### **10 GHz and Up Contest**

The results for the 2012 10GHz and Up Contest are now available on-line.... click on: <http://www.arrrl.org/contest-results-articles> you have to expand the 2012 year and scroll down to our contest. There is an article in the February issue of QST on this contest.

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## **Upcoming Meeting Tech Talks**

**March 7 SBMS meeting –nomination of officers-** Maker Faire San Mateo has some 100 k people attend this show and tell on homemade projects. Come listen to Dennis W6DQ talk about what goes on there.

**April 4 SBMS meeting- election of officers-**Near field antenna range with Dan Slater.

**May 2 SBMS meeting-**ruggedizing your gear by Mel WA6JBD

**June 6 SBMS meeting-** show and tell on the 1 to 5 GHz bands. What does the equipment look like and what can you do on these bands.

**July 4 SBMS meeting-**Beginner microwave talk for other clubs. Dennis, W6DQ will show us how to do such a talk.

**August 1 SBMS meeting-** contest preparation

### **Wants and Gots 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

**Want-** an X-band plug-in for HP8620 sweeper. Bill WA6QYR [bburns@mediacombb.net](mailto:bburns@mediacombb.net)

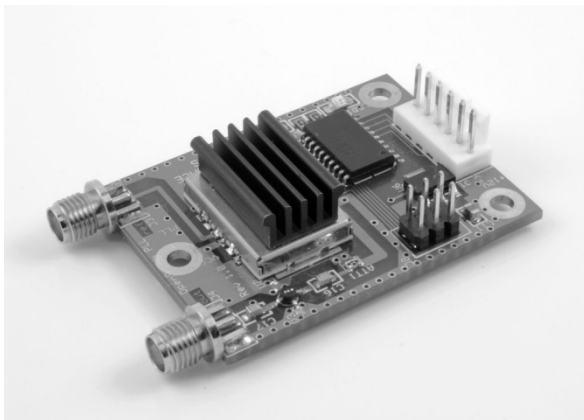
For Sale- Pre-estate sale- Ask Bill what you are looking for and he may have it for a good price.  
Bill WA6QYR [bburns@mediacombb.net](mailto:bburns@mediacombb.net)

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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. I am not carrying any inventory so this allows shipping time to obtain kits and any other materials, and time to test the finished product plus ship to the customer. At this time I am limiting this to the VHF/UHF 25w Transceiver kits. In a couple months I hope to add three amplifier kits from Communications Concepts, Inc. If there is a something special you want assembled contact me. My professional credentials are at:

<http://www.k17uw.com/60NE.htm> Ed Cole



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>

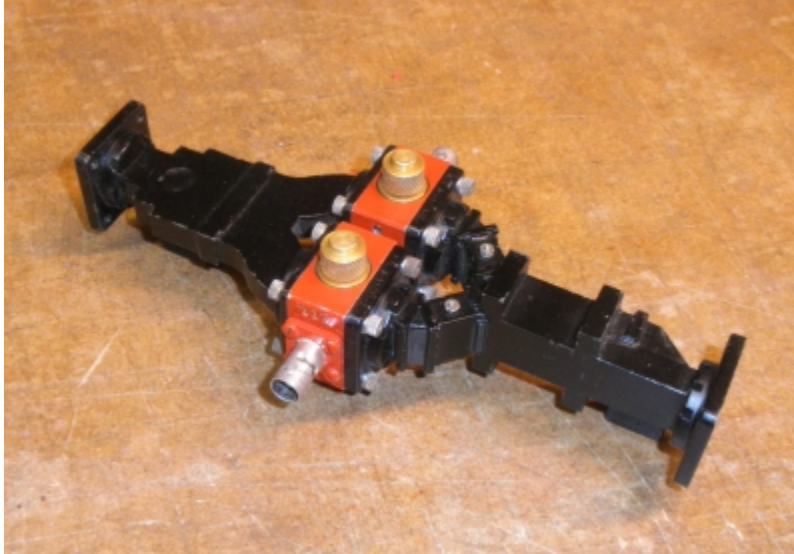


10 GHz slotted waveguide antennas \$55 kit, \$80 assembled plus shipping Dan W6DFW [W6DFW@apex-scientific.com](mailto:W6DFW@apex-scientific.com)

Member Dan Welch is taking orders for the next batch which will be sometime around August; in time for MUD.

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## Mystery Microwave Gismo of the Month



### The prize?

Glory

You get the undying  
respect of the rest of the

club for how smart you are. (That's all we got to offer.)

## Information 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. We will contact you by email. 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 car pooling from North Orange County call Walter Clark @ 714 882-9647

### **SBMS Group Email *The Reflector***

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 messages as appropriate.)

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

The SBMS Reflector is ephemeral. There's no record kept. If you have material you would like made a permanent part of the SBMS website or the newsletter, copy to, or

originate to:

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

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

The newsletter is created about the middle of the month and broadcast as eMail the weekend prior to each meeting. SBMS Newsletter material can be copied as long as SBMS is identified as source.

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

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