



SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1955

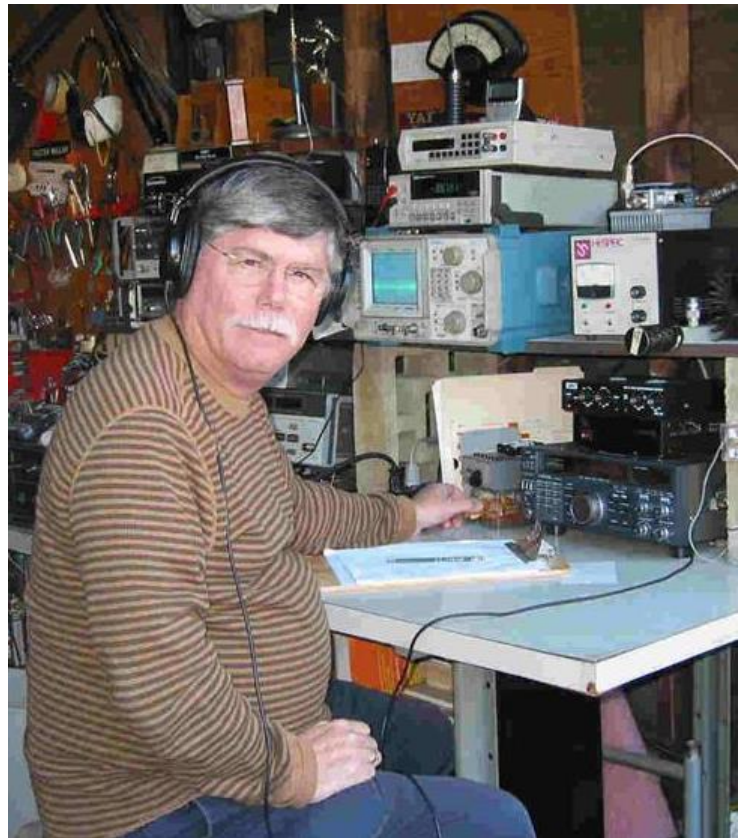
A NON-PROFIT AMATEUR TECHNICAL ORGANIZATION DEDICATED  
TO THE ADVANCEMENT OF COMMUNICATIONS ABOVE 1000 MC.

# February 2015 Newsletter on the Activities of the San Bernardino Microwave Society

Walter Clark, Editor

## **“Extending Your Measurement System Frequency Range with Harmonic Mixers”**

will be the February 5th 2015 SBMS meeting technical topic presented by Doug Millar, K6JEY. Dr. Doug Millar is a past President of SBMS and has mentored many new members in microwave radio design and integration. He is the only Radio Amateur who has built his own systems on 10 GHz, 24 GHz, 46 GHz, 78 GHz, and 110 GHz, as well as the lower microwave bands. Doug has been a Test Equipment and Measurement Advisor with the ARRL since 1994 and was the author of Amateur Radio Handbook Ch. 26 "Test Equipment and Measurement" from 1995 to 2011. He has numerous published articles and has been a speaker at International EME and radio conferences. Don't miss this excellent talk.



If you can't make it: watch online: [http://www.batc.tv/ch\\_live.php?ch=2&id=139](http://www.batc.tv/ch_live.php?ch=2&id=139)

# **Activities at the January Meeting of the SBMS**

**(that would be of interest to the general ham radio community)**

**Presiding: President Chris Shoaff (N9RIN)**  
**(14 in attendance... 19 last month)**

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

Dave Laag - W6DL

Joe Cadwallader - K6ZMW

Marsha Munn – wife of Ed Munn, W6OYJ

Viann Duncan WD5EHM – wife of Courtney, N5BF

## **Old Business**

- Mel, WA6JBD reported for Pat, N6RMJ on MUD preparations. Need to make sure there are enough volunteers to run this.
  - Task List:
    - web page (current webmaster?)
    - online registration
    - registration desk - multiple people
  - Pat, N6RMJ, will talk to hotel about a “page” for this group - prices, etc., something we can link to, also a Paypal link.
  - Wayne K6WZ, will take on the task of getting MUD advertised in all the ham magazines.
  - Dave Glawson, WA6CGR, will do prizes.
  - Mel, WA6JBD, will need help with testing - equipment, people who can run equipment for the indoor lab.
  - San Diego group is providing the outdoor antenna range.
  - Rein, W6SZ will design and Frank, AG6QV, will assist with the web page. Several hosting suggestions were made.
  - Dick, WB6DNX, was asked to set up the PayPal registration fee system. Funds should be kept separate from what we have now.

## **New Business**

- Chris, N9RIN had a request for Ed, W6OYJ concerning the Tune Up Party in July. Since the San Diego group doesn't want to drive up in July for the Tune Up Party, test range . . .
  - can he get a schematic from Kerry about how it's set up and what equipment is used?

- There was follow up discussion on who will own and maintain that equipment.
- There was a discussion on alternate sites for the “Tune Up Party”.
  - The park in Costa Mesa is getting expensive.
  - Brian, AF6NA had talked to Gordo, WB6NOA, who is a resident of Costa Mesa and can get us a “resident” rate. We have been paying non-resident rates, which he thought was \$110. Brian will follow up.

Courtney Duncan (N5BF), Recording Secretary
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## What Our Members Are Working On

- **Rein Smit W6SZ (Alta Loma)**

is working on a preamp and a horn for 24GHz.

- **Courtney Duncan N5BF (Eagle Rock)**

Just a little monitoring over the last month, but family trip and other holiday activities dominated.

- Did look for ON0EME and did DSP-10 and JT echo tests but have not seen anything conclusive off the moon. Conclusions:
  - (1) Must be able to aim in elevation and have some clear places to look at. The cross section between my elevation and moon opportunities is close to nil.
  - (2) Need bigger antenna.
  - (3) Set existing antenna on horizontal to work the locals and terrestrial DX

(Editors note: See article on “ON zero EME” later in this Newsletter.)

- **Dave Laag W6DL Morongo Valley**

got the microwave bench working in December at 3 watts.

- **Walter Clark (Fullerton)**

will be the speaker in April and will talk about XBee, WiFi low bandwidth 2.4 GHz units, good up to about a mile with other such units. Plans to use as telemetry (down link only) with model airplanes.

- made a random DC source as sensor simulator by amplifying the noise on a Zener diode and then band passing it between .001Hz and 1 Hz. Should have been a one day project but was three weeks and still isn't quite done. He said it was very interesting... that white noise on a semiconductor junction includes noise below 1Hz.
- He demonstrated the XBee link by sending simulated sensor (random DC) across the table.

- **Wayne Overbeck N6NB (Tustin)**  
was our speaker this evening and so his activity for the month was preparing for this talk.
- **Jim Blum KK6MXP Corona**  
spent most of his time trying to get his digital weak signal stuff working, particularly trying to get the Signalink hooked up. Thought he broke his radio, but it was just the beacon had been turned off!
- **Mel Swanberg WA6JBD (Upland)**  
had a little time to get back to 2.4 G FM repeater project. Has some lengths of fairly high quality microwave cable and is trying to get good connectors to put on them. There was some discussion on connectors (SMA, 3.5 mm, etc.) on E-Bay. After doing some testing, Mel was astounded about low quality and low performance. The Chinese ones fall apart at 1 GHz.
- **Joe Cadwallader K6ZMW Marina Del Ray**  
has been active on VHF for years but is new to this group. Helped W6CA develop 1296 stuff back in the 80s. Recently retired from aerospace. Looking for a 1296 module for his IC-910.
- **Frank Kromann AG6QV (Trabuco Canyon)**  
cleaned up his garage for an eventual move from room in the house to the garage
- **Gordon West (Gordo) WB6NOA Costa Mesa ( Checking in over ATV )**  
complimented us on a great meeting!
  - He will be at Quartzite starting Friday with ATV and possibly 10 GHz.
  - And he will help with our tune-up party in July. Saw lots of 2.4 and 5.6 GHz and UAVs at the electronics show this past week.
- **Ed Munn W6OYJ (San Diego) Reporting on the Activities of the San Diego Group (They normally meet 3<sup>rd</sup> Monday at Karry Banke's house; 7 p.m. 9 p.m.)** On other Monday nights, a 9:00 PM net is held on Palomar RC Repeater: 146.73
  - They are working on filters for ISS project. They are planning to do the downlinks for the Europeans first. Their frequencies for WiFi are different from US. They need different filters that are very sharp because they have loud local signals and weak distant signals.
  - Greg Bailey, K6HPV is to the point where he has 1 dB moon noise in his 10 GHz EME system. His 6' dish is computer position controlled.
  - Brian Comer KF6C is developing a miniature IF transceiver on 144 MHz.
  - Brian's son just made General and received KK6EME.
 ARRL web page can get you to an excellent article about the 2014 10 GHz And Up contest from last summer.

Courtney Duncan (N5BF), Recording Secretary
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## Upcoming Events (Identified by Marty Woll N6VI)

- May 2-3: SBMS 2 GHz & Up Contest
- May 16-17: Maker Faire, San Mateo CA
- June 13-14: ARRL June VHF Contest –all microwave bands
- June 27 – 28: ARRL Field Day (Demonstrate microwaves to the visiting public)
- Aug. 1-2: ARRL UHF Contest – includes all microwave bands
- August 15-16: ARRL 10 GHz & Up Contest – 1<sup>st</sup> weekend
- Sept. 11-13: ARRL Southwestern Division Convention, Torrance CA (can you offer a microwave program?)
- Sept. 5 - 6: ARRL EME Contest – 2.3 GHz & Up
- Sept. 12-13: ARRL September VHF Contest – includes all microwave bands
- September 19-20: ARRL 10 GHz & Up Contest – 2<sup>nd</sup> weekend
- Oct. 16-18 Microwave Update (SBMS-sponsored), San Diego
- Oct. 31 - Nov. 1: ARRL EME Contest – 2.3 GHz & Up
- Nov. 28 - 29: ARRL EME Contest – 50 through 1296 MHz – 1<sup>st</sup> weekend

**Anyone, (not just SBMS members) . . . if you know of any future 1 GHz and above amateur radio event, please send date and description to the editor:**  
[walterclark@roadrunner.com](mailto:walterclark@roadrunner.com)

## Last Month's Tech Talk:

Wayne Overbeck N6NB, gave the Tech Talk: **Working Hawaii on VHF and Up 1957 to 2014**

### **An Eye Witness Account"**

All bands from 2 meters through 6 cm have been worked from California to Hawaii during a ducting season that occurs each summer. Success has not been achieved on 10 GHz.



In the Activity Reports, Courtney Duncan “looked for ON0EME and did DSP-10 and JT echo tests but have not seen anything.” It might be appropriate to review what those mean.

## The 1296 MHz ON0EME Moon Beacon



This dish in Örebro Sweden tracks the moon when above 10° of elevation and transmits a high power signal direction to the moon. The signal is bounced off the moon and can be received with modest receive antennas. The smallest station reported is from Carlos, CS5RAD using a 1.4m parabolic reflector. The ON0EME group hopes to encourage other radio amateurs to attempt receiving the signals and improve their equipment.

Operational parameters can be seen at <http://www.on0eme.org>

The DSP-10 is an amateur-radio, software-defined 2-meter transceiver that can be built at home. It operates not only on SSB, FM and CW, but also on three Weak-Signal modes. Features are tailored to operation on VHF, UHF and Microwave frequencies. <http://www.proaxis.com/~boblark/dsp10.htm>





## Dennis Kidder's Ham Radio Museum and Laboratory is Almost Moved (photos by Walter Clark)



## Gary Heston's ATV Mobile Studio

Not only can you watch our meetings live (well delayed by 240 milliseconds) You chat to other viewers about what you are watching (or anything else.) Enter the chat room by clicking on the white space on the right of the website described below.

**Just as a reminder, this is how you watch SBMS meetings from home:**

[http://www.batc.tv/ch\\_live.php?ch=2&id=139](http://www.batc.tv/ch_live.php?ch=2&id=139)

Better yet memorize the following

Keywords: BATC TV

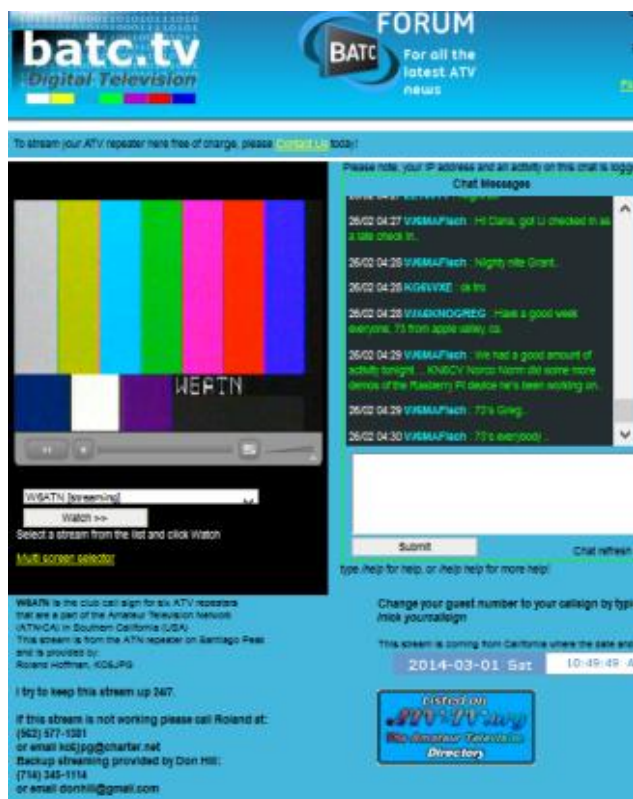
and use Google

The TV part is easy to remember. Think of the BATC as batch without the h. It's a British website (that's the B) Once you are there, on the left, you have to pick a stream. The stream to choose is:

**W6ATN.**

Memorize W6ATN as ATN in California. W6ATN is the club call sign for six ATV repeaters that are a part of the Amateur Television Network in Southern California. (ATN-CA)

Gary Heston's mobile studio beams its signal to the ATN repeater on Santiago Peak which is provided by: Roland Hoffman, KC6JPG



## Checking in Those Watching on Gary W6KVC's ATV.

- **Gordo, WB6NOA: Great meeting! Will be in Quartzite week of January 18**
- **KE6BXT, Don, Mission Viejo**
- **WA6EJO, Steve, Ventura**



# Microwave Mystery Gizmo of the Month

What is the name of  
this famous radar and  
what is he doing?



If you would like to discuss this, use the SBMS Reflector by sending a letter to the following email address:

[SBMS@lists.altadena.net](mailto:SBMS@lists.altadena.net)

If you don't have an account sign up at this website:

[sbms@ham-radio.com](http://sbms@ham-radio.com)

# Microwave Mystery Gizmo of the . . .

## Previous Month



That's a ladies underarm and that hand held thing is microwave diathermy like device.

I think it's a for real thing in that the journal article the ad referred to showed the same arm before it was airbrushed. There were marks on the

skin to guide the application and the process is done under anesthesia.

As you all know microwaves don't cook from the inside out, they cook a cm or so in and the heat spreads both inward and outward. The depth of this cooking destroys tissue at the level where the sweat glands are. Apparently there are people who sweat with the slightest exertion and a surgical way to end that problem seems to be very much appreciated.

## Needs, Wants and For Sale (Updated 28 October)

- **For Sale from Chris Shoaff:** N9RIN [cshoaff@yahoo.com](mailto:cshoaff@yahoo.com)
  - 30w 1296 MHz PA kit \$50 + \$5 for US shipping
- **For Sale from Mel Swanberg:** [wa6jbd@verizon.net](mailto:wa6jbd@verizon.net)
  - HP 141T w/1200 MHz Plug-in And 3 18 GHz Plug-ins. Make offer, so cal local only.
- **Wanted by Jim Blum:** [tenbakerst@aol.com](mailto:tenbakerst@aol.com)
  - Source material; papers; on microwave and microwave construction.
  - Info on digital modes for microwave (WSPR, etc.) Info on beacons/beacon construction

- **For Sale from Bill Burns:** Bill will only rarely come to the meetings, so if you want any of this, please contact him by email at . . .  
bburns@mediacombb.net)  
His address is: 247 Rebel Road Ridgecrest CA 93555 and phone: 760-375-8566
  - 8 watt 5 GHz TWT's with power supplies \$50 each
  - copper wire enamel coated #14 many feet coils \$10 each (coils are like a foot in diameter and maybe a dozen turns or so...30 or 40 ft long wire)
- **For Sale from Doug Millar (drzarkof56@yahoo.com):**
  - a Rohde and Schwarz 309 10-18GHz Signal Generator in perfect shape. It is digitally synthesized and has a pull out instruction card. It has internal modulation and will also sweep. Will accept \$900.
  - I also have an HP432 power meter, cable and head (478) in working order for \$100



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- The SBMS newsletter is to keep member informed on current activities of the “active” members; the members that come to the meetings or use ATV to report in.
  - The website is for articles and all activities of the past.
  - But questions or even bragging is for the SBMS Reflector. Send your email message to: sbms@ham-radio.com. More than 80 people will see your question or your bragging. (To sign up go to: <http://lists.altadena.net/mailman/listinfo/sbms>.)

# Member Ads

## Sixty North Electronics

### Kits Made by member KL7UW

Let Ed Cole assemble your Down East Microwave kit. For kits in stock, he can deliver an assembled unit to your custom design preferences within 30-days of a paid order. **His prices are the same as you pay DEMI for an assembled transverter, but much quicker delivery time. And comes with 90-day written warrantee on labor (guaranteed to work)!**

Shipping for a transverter is typically that of medium-size flat-rate Priority Mail anywhere in the USA.

For examples of his work click on... <http://www.kl7uw.com/kits.htm>  
Contact him at [kl7uw@acsalaska.net](mailto:kl7uw@acsalaska.net)

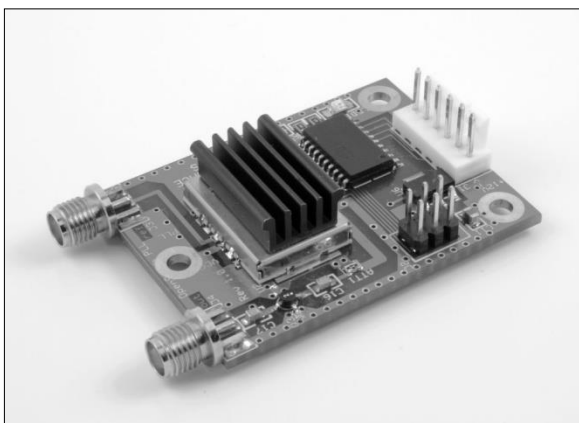
## Member Ads Continued



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>



If you are a member you can have a picture ad here yourself.  
For the time being this service is free.  
eMail editor at: [WalterClark@roadrunner.com](mailto:WalterClark@roadrunner.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.

### **Official Address**

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