



SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

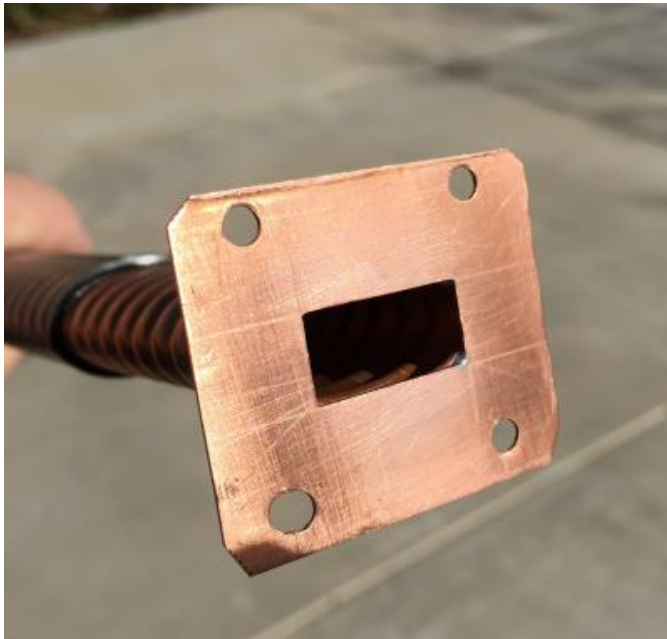
FOUNDED IN 1955

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

San Bernardino Microwave Society Newsletter

Tech Talk for the January 7th Meeting

Our January speaker is SBMS vice president Brian Thorson AF6NA



At the January 7th, 2016 SBMS meeting, AF6NA will present the test methods for insertion loss and reflected power on this waveguide. He will also share, for the benefit of our newer members and students of microwave, waveguide basics, such as insertion loss, waveguide propagation modes, frequency and wavelength considerations, “multi-modding,” terminations, transitions and connections for waveguides.

Come and join SBMS at the Meeting this Thursday, January 7th at the American Legion Hall, Corona: 11th and Main (See map below.)

If you can't make it: watch online through Gary Heston's mobile video facility W6KVC by way of the internet out of England:

http://www.batc.tv/ch_live.php?ch=2&id=139

Activities at the December 2015 Meeting of the SBMS

(that would be of interest to the General Ham Radio Community)

Presiding: Vice President Brian Thorson AF6NA

(18 in attendance... 17 last month)

Guests Or Members Not Seen In a Long Time

- Dave Glawson WA6CGR with some test equipment for tonight's activity.
- Roland Hoffman KC6JPG, assisting W6KVC and WB6HYH with ATV.

ATV and online checkins

Earl KJ6DQR Cathedral City.

Earl reported his son Nathan AG6AV is also watching but not transmitting.

Online - Roland KC6JPG logged into the chatroom and reported: Mike W6SVT, WA2BOT, VE4MA, N9RIN, N8KH, N0KP, KF6PGT, KC0ITF, KB3DXR, K4QF, K0AWU, WA6ZKY, WX6DX, and six guests without declared callsigns.

Old Business

- Brian Thorson AF6NA reported on Microwave Update 2015 Proceedings sales. He had mailed out 18 copies and had 2 remaining, one of which had been spoken for this evening.
- Dave Laag W6DL reported that he can get a machine to make badges for less than \$200 and plans to start working on new badges in January (or later).
- Walter Clark will be hosting the SBMS Christmas Party starting at 1 p.m. December 12, 2015.

- **New Business**

- Brian Thorson AF6NA noted that it had been suggested we meet someplace besides Sizzler (Corona) before meetings. Several other restaurants in the area were suggested. Brian appointed Walter Clark to visit some of those restaurants and report back next month on menu, price, and facilities such as a banquet area.
- Dave Glawson WA6CGR asked why an Auxiliary Fund was accounted separately in SBMS bookkeeping. It was noted that there has always been one bank account but that it had been broken into two funds (“Dues” and “Auxiliary”) which were always reported separately. The “Auxiliary” (or “Beacon”) fund has had \$6850 in it for several years.
- It was moved and seconded (Glawson - Kromman) that we should have one bank account and one fund and report it that way.
 - Mel Swanberg WA6JBD thought he remembered a similar discussion in recent years.
 - No vote was taken.
 - Secretary Courtney N5BF researched recent SBMS meeting minutes for discussions of the Auxiliary Fund since April 2014:
 - July 2014: discussed reimbursing Chuck Swedblom out of Auxiliary Fund for any expenses incurred in repairs of a 2.4 GHz beacon.
 - April 2015: Auxiliary Fund balance reported at \$6850, as usual.
 - July 2015: Discussion of running MUD out of the Auxiliary Fund or creating a new MUD fund. A new MUD fund was created (but all funds are still the same one bank account).
 - Minutes further in the past are not searchable on N5BF’s computer.
- Dick Bremer WB6DNX proposed that we have a group of senior members come in early next month, do a quick audit for the January report and get rid of a stack of paperwork.
- Brian Thorson stated that in January this committee would look at the situation and propose how to go forward.
 - Volunteers to Bremer to be on the committee: Laag / Glawson.

Courtney Duncan (N5BF), Recording Secretary

Christmas Party at Walt's



Jim Blum, Dick Palmer and RMJ himself.



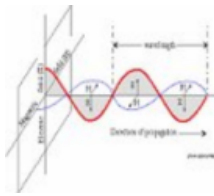
Dick Bremer and Dave Laag doing some physics at the Christmas Party



There's Jason Sogolow W6IEE (Burbank) on the left. We don't get to see at the meetings much anymore. Marty Woll, Dick Bremer and Tom Curlee. (Mrs. KLH on the right.)

Upcoming Events

- January 30 – February 1: ARRL January VHF Contest (includes all microwave bands)
- February 19 – 20” ARRL Southwestern Division Convention, Yuma AZ
- April 15-17, 2016, VHF Super Conference near Washington, DC.



VHF Super Conference

Sponsored by Southeastern VHF Society, North East Weak Signal Group and the Mt. Airy VHF Radio Club. Hosted by the Grid Pirates Contest Group and Directive Systems and Engineering

For information on other events... see “Activities” in the SBMS **Website**, which, you should have memorized by now:

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

- The newsletter is distributed by way of the SBMS Website:
www.ham-radio.com/sbms
- The purpose of the SBMS Newsletter is to keep hams everywhere in the world informed on current activities of the “active” members of the San Bernardino Microwave Society. Active Members include those who:
 - come to the meetings and share their progress
 - use ATV to report in and describe their projects
 - send by email words and pictures of progress to:
walterclark@roadrunner.com
- Time sensitive questions, reports or just plain bragging is for the SBMS Reflector. Send your email message to: sbms@ham-radio.com. To sign up go to: <http://lists.altadena.net/mailman/listinfo/sbms>

What Our Members Are Working On

- **Dave Glawson WA6CGR (Wilmington)**

has been continuously monitoring the San Diego beacon from the SBMS lab for the last year. Last night it was S5. He thinks that when we have good conditions we should get on the air from home using our vertical wave-guide omni antennas. Several in the room

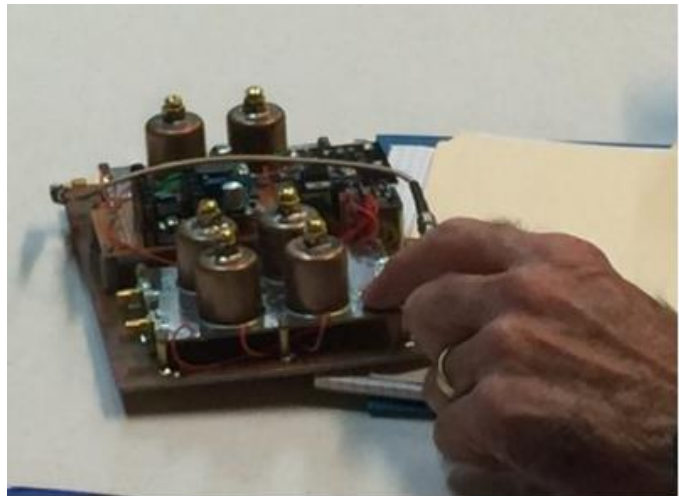


expressed interest in participating and ways of putting information about openings on the reflector were discussed.

Dave has a new Spectrum Analyzer RIGOL DSA-815-TG with the built in tracking generator: 9 KHz to 1.5 GHz which is very useful for work in the IF bands - filters, etc. Video bandwidth goes down to 10-100 Hz. Noise floor - 135 dBm. Includes frequency and power level readout up to 20 dBm. List price \$1495. Free shipping and no tax on Amazon. Has USB and software. The unit has a full 8" screen but can store screen shots and move them elsewhere.

- **Larry Johnston K6HLH: Lake Los Angeles**

brought his completed 5760 MHz transporter, *all from boards he bought at MUD*, local oscillator and transverter included. It all runs on 5V but at first the regulator heated to 170C so he put a 10 ohm big resistor in front of it to take most of the voltage drop which helped reduced the temperature. The first multiplier uses mini-circuits parts. The gain changes drastically with voltage.



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

is working on waterfall display capabilities. He is looking for an option that uses 12 or 5 V, such as a Raspberry Pi. The software is Linux based. Difficult learning curve, but good performance. Hopes to put the unit in a little field box. Also hopes to put an antenna on top of the car and drive around looking at beacons.

- **Mel Swanberg WA6JBD (Upland)**
acquired a 10 GHz flat panel antenna on E-Bay and considers it the basis of a home station. Using with a Harris 5 W power amplifier, a low noise amplifier, and transverter in one box it could be mounted on the roof with a rotator.
- **Dave Laag W6DL: Marino Valley**
made great progress in antenna gain when his neighbor cut down pine trees that had blocked his view to Rolling Hills and Sierra Peak.
- **Bill Locke N6WL (Baker CA)**
showed a waveguide switch he had acquired on E-Bay that activates on 24 V. It has an insertion loss of 0.2 dB, but isolation greater than 65 dB.
- **Frank Kromann AG6QV (Trabuco Canyon)**
picked up one of the dishes that Marty W6VI was talking about last month. Now it is in his back yard waiting on mount and feed work. He also needs a feed horn for a 36" portable rig.
- **Wayne Overbeck N6NB (Tustin)**
was mainly measuring RF fields. He bought a radiation hazard meter on E-Bay similar to the one he used to borrow from the safety office at Cal State Fullerton. He is finding interesting things by going around and measuring.
- **Eric Fort AF6EP**
is working on getting a wireless data network going.
- **Walter Clark**
was inspired by what Dan Slater did for finding dish focus and bore site.
 - Walter hosts the Fullerton Radio Club Technical Adjunct meeting at his house where he saw in more detail what Dan had done. Dan showed him how to do the same function without the expensive FieldFox meter. It was to use a \$30 phase detector instead which Walter immediately ordered on eBay.
 - Over the past month, Walter added display circuitry.
 - He demonstrated how easily seen are the peaks and nulls at the meeting → That's Ed Munn W6OYJ to the left of Walt.
 - The phase detector can also be used as a log comparator for measuring (in dB) an unknown power level against a reference that need not be the same frequency.



- **Ed Munn W6OYJ (San Diego) Reporting on the Activities of the San Diego Group (They normally meet 3rd Monday at Kerry Banke's house.)**

reported on the November 16, 2015 meeting of the San Diego Microwave Group at Kerry N6IZW's garage workshop. Sixteen were present, a recent record. Kerry showed his compact signal generator - spectrum analyzer for 138 MHz - 4.4 GHz with an output that connects to a computer. Cost on this was \$60.

- He also described a 35 MHz - 4.4 GHz unit that costs \$80.
- Brian Comer KS6C is working with Kerry on a joint 10 GHz project.
- Michelle Thompson W5NYV and Paul Williamson KB5NU are working on an AMSAT project for digital voice up and down from ground stations to future satellites on 70 MHz to well into the microwave bands.
- The December San Diego group meeting was held Monday December 17, 2015, 7 p.m. at the same location. Bring your own refreshments and microwave "white elephant" for an informal exchange.

- **Dick WB6DNX: Brea**

had a little microwave activity with Don Hill KE6BXT and others from the ARDEN group. They did a complete demo for Brea and neighboring RACES groups. The idea was to see what the city could do with this capability, not necessarily MESH but point to point across town. Further experiments are planned. Dick brought the same demo here tonight but couldn't get the antenna into a good enough location.

- **Brian Thorson AF6NA Corona**

His microwave activity for this month was preparing for the construction project later that evening.

- **Courtney Duncan N5BF La Canada**

showed his Burbank Turkey Trot 2015 runner's bib. He had been randomly assigned number (but extraordinarily appropriate) 1296 and will keep this bib for posting in future stations.

He has been working on plans and drawings for a rearrangement of the shack room (without a remodel or new furniture) to a better location for his 1296 moon bounce station in terms of coax run. The actual move will occur shortly after Christmas.

Courtney Duncan (N5BF), Recording Secretary

To the left is some of the test gear Brian put together for us to measure the SWR which was the only criteria for winning. (Some controversy there.)

Tech Talk Last Month

Construction Project “during” the Meeting led by Brian AF6NA

The room divided into teams which were to place feeds on beer can beverage horn antennas for 10 GHz and measure return loss.

Team *Noise Figure* was the winner. Captain Larry Johnson led Walter Clark and Rein Smit.



Also participating:

Team *Return Loss* with captain Mel Swanberg

Team *Micron* with captain Dave Laag

Team *Millimeter* with captain Dave Glawson.



To the left is some of the test gear Brian put together for us to measure the SWR which was the only criteria for winning. (Some controversy there.)

Below, Dave Laag and Frank Kromann working the tester.





This is Roland Hoffman KC6JPG who we normally see as one of the ATN check-ins. He was at the meeting in person for a change and naturally Gary put him to work on the left camera.

Roland is a real asset to SBMS as well as ATN. It is his repeater on Santiago Peak that receives Gary's signal.

Gary Heston's ATV Mobile Studio W6KVC

Not only can you watch our meetings live (well delayed by 240 milliseconds). You can chat with 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.

This is how to watch SBMS meetings from home: http://www.batc.tv/ch_live.php?ch=2&id=139

Better yet memorize the following Keywords: BATC TV and then 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, and logged in, on the right choose "Repeaters" and then on the left, you have to pick a stream.

The stream to choose is: **W6ATN**.

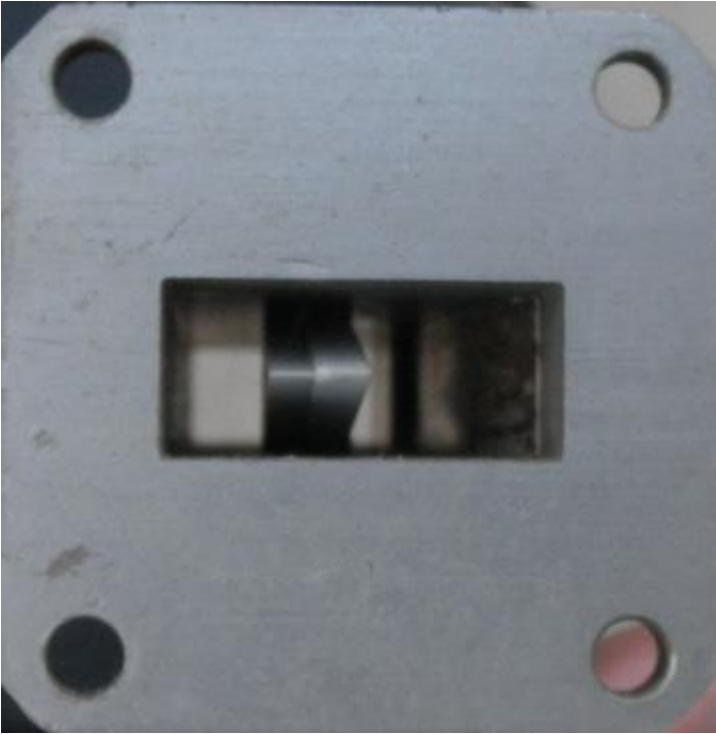
Memorize W6ATN as ATN in California.

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



Microwave Mystery Device of the Month



If you can identify this, or would like to discuss this, use the SBMS Reflector by sending an e-mail letter to . . .

SBMS@lists.altadena.net

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

sbms@ham-radio.com



Here's a challenge: Explain how it works

Needs, Wants and For Sale (Updated 4 December 2016)

- **For Sale from Bill Burns:** Bill will only rarely come to the meetings, so if you want any of this, please contact him by phone or email.

phone: 760-375-8566 email: bburns@mediacombb.net

His address is: 247 Rebel Road Ridgecrest CA 93555

- TVRO dishes 10 ft, 6 ft, and 5 ft ← **free**
- Long lengths of heavy tower guywire with insulators ← **free**
- Lengths of aluminum tubing, ½ inch to 3 inch diameters ← **free**
- Earth screws for anchors of guy wires ← **free**
- 1296 antenna 8 bays of 3 element Yagis \$10
- Pickup bed trailer with camper shell- licensed. \$250

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.

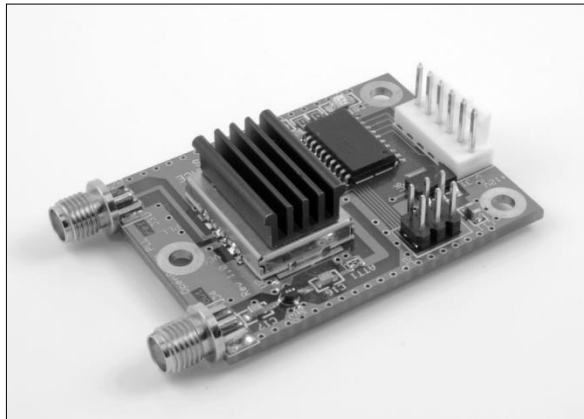
For examples of his work click on... <http://www.kl7uw.com/kits.htm>
Contact him at kl7uw@acsalaska.net



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.

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- ▲ 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 the editor at: 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).***

Official Address

San Bernardino Microwave Society

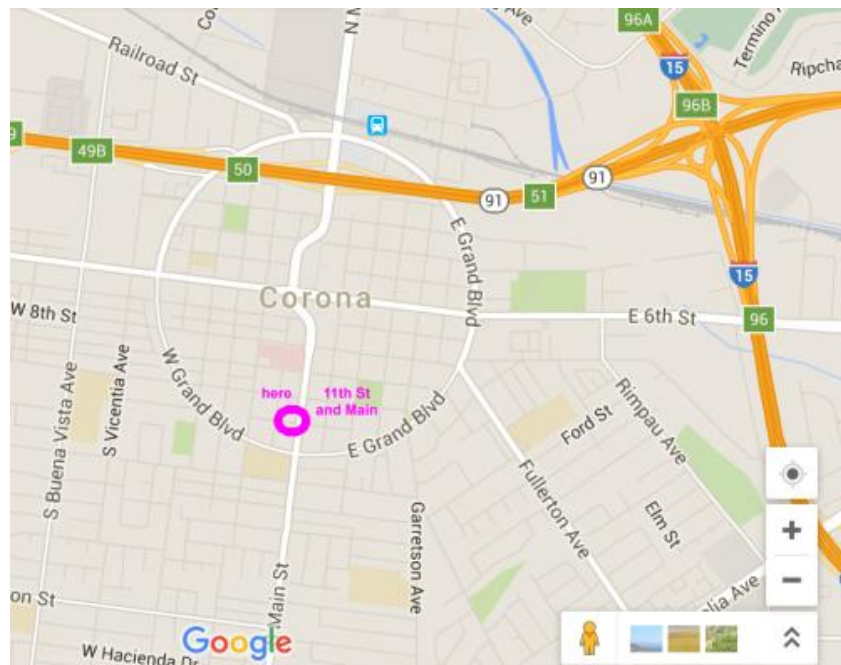
417 South Associated Road #146

Brea, CA 92821

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 Dick Bremer at:
714-529-2800



Group Email; the Reflector: Dave Glawson WA6CGR wa6cgr@ham-radio.com

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> After that, Send your email message to: sbms@ham-radio.com. (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.)

Website: Rein Smit W6SZ: rein0zn@ix.netcom.com

The URL is: <http://www.ham-radio.com/sbms/> But 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

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- come to the meetings and share their progress
- use ATV to report in and describe their projects
- send by email words and pictures of progress to:
walterclark@roadrunner.com

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