



SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1955

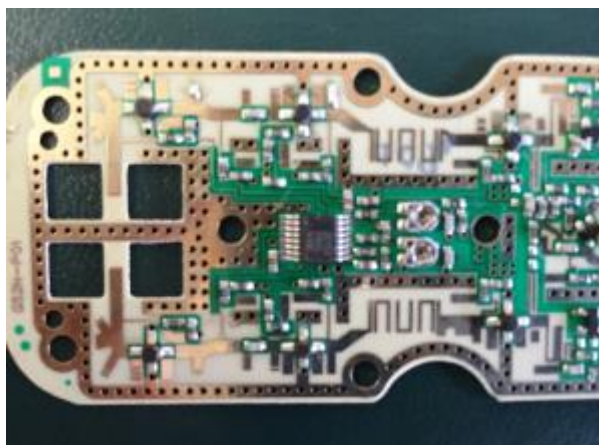
A NON-PROFIT AMATEUR TECHNICAL ORGANIZATION DEDICATED
TO THE ADVANCEMENT OF COMMUNICATIONS ABOVE 1000 MC.

San Bernardino Microwave Society Newsletter

Tech Talk for the March 3rd Meeting

Our March speaker is Brian Thorson AF6NA with some help from Larry Johnston K6HLH. He will talk about and demonstrate Snow-Flaking.

Microstrip and Stripline construction are commonly used for microwave amplifiers, oscillators, filters and multipliers. Converting commercial microwave equipment for Amateur use often requires modification, and that can sometimes be as simply as re-tuning a microstrip circuit board. This is a technique of adding capacitive and inductive components to existing microwave transmission lines. While this presentation is targeted for those new to microwave circuit construction, those with experience are also encouraged to bring your insight and knowledge to the meeting and add to the discussion.



**Come and join SBMS at the Meeting this Thursday, February 4th
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://atn-tv.org/live>

Activities at the January 2016 Meeting of the SBMS

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

Presiding: Chris Shoaff AF6NA

(24 in attendance... 18 last month)

Guests Or Members Not Seen In a Long Time

- Greg Campbell W6IT (Newport Beach) one of our February tech talk presenters
- Benjamin Kromann KK6GMG, son of Frank Kromann AG6QV

ATV and online checkins

ATV – none

Participants in the BATC internet chatroom: KB3DXR, KB6CJZ, KC6JPG, KF6PGT, KI6BR, KK6GZI, N8KH, W2RMA, W6TE, WA6ZKY, W6QIW, K4QF, WA6SVT, and 7 guests

Old Business

- Brian Thorson AF6NA reported progress on the Santiago 10 GHz Beacon which has been off the air since September 2015. Pat Coker N6RMJ was working with Gary Dent AF6HP who had the beacon on the air at his house in Yucaipa. The power level had been increased from 250 to 850 milliwatts. There had been reception reports from the high desert and from Mt. Potosi.
- Doug Millar K6JEY reported on his research into 2304 beacon equipment, followed by group discussion of implementation options.
 - The baseline design is a basic 2-meter transceiver with output reduced (or final stage disabled) to transverter drive levels which would also extend life, and a CW-Matic or equivalent looped CW generator that would also serve as the on / off controller such as would be required by Cactus host sites, all driving a Kuhne 2304 transverter with power output around one Watt.
 - Wayne Overbook N6NB moved that Doug be authorized to use SBMS Auxiliary Fund money to implement the plan as soon as possible. The motion was seconded and passed on a voice vote.
 - Walter Clark moved that expenditures over the next month be limited to \$1000. This motion was also seconded and passed.

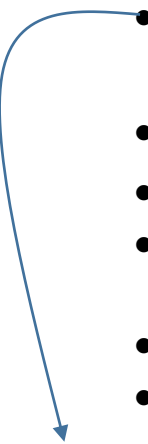
New Business

- Chris Shoaff N9RIN led a discussion about other electronic means of broadcasting the SBMS meetings. It is hoped that live streaming will improve interaction with attendees via the internet chatroom.
- Rein Smit W6SZ asked Roland Hoffman KC6JPG to provide internet streaming information to Walter Clark so that it could be published in the newsletter.
- Roland also asked to be added to the SBMS reflector.
- Gary Heston W6KVC demonstrated the live stream of the meeting coming over his smartphone.
- Chris announced that annual officer elections would be held at the April 2016 meeting and that he would need to step down as President at that time.
- Marty Woll, N6VI brought up the subject of SBMS membership records. He had acquired the bank and PayPal statements from Treasurer Dick Bremer WB6DNX in order to track dues paid as part of Microwave Update 2015 registrations as well as normal dues paid by cash and check back to April 2015. From this Marty had constructed a current roster of paid members. Given this list, he now wants suggestions on what inactive members we should reach out to. In discussion, consensus was that 1. All current paid members should get a badge if they don't already have one (Dave Laag W6DL is working on badges); 2. Those who joined at MUD (October 2015) should be extended to April 2017 since nothing much has been done for them to date; and 3. They should be invited to be added to the SBMS reflector if they so desired so they can receive meeting notices and streaming information, newsletters, and event notifications. (It was noted that one not be a member to be on the reflector.)

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| Courtney Duncan (N5BF), Recording Secretary |
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Upcoming Events

- March 12 Palm Springs Hamfest: palmspringshamfest.com
 - April 7: SBMS Meeting
 - April 11: 144 MHz Sprint
- For more information on these Sprints:
<https://sites.google.com/site/springvhfupsprints/home/2016-information>
- April 14-17, 2016, VHF Super Conference near Washington, DC.
 - April 19 222 MHz Sprint
 - April 27 432 MHz Sprint
 - May 7 Microwave Sprint CSVHF Microwave Spring Sprint (902 & Up)
 - May 7 – 8 SBMS 2 GHz & Up Contest
 - May 20 – 22 Maker Faire – San Mateo
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For VHF-UHF-Microwave and Weak Signal Enthusiasts

The First Ever, VHF SUPER Conference will be held at the Holiday Inn Washington-Dulles International Airport, Sterling, VA, April 14-17, 2016.

If there ever was One VHF Conference to go to –This Is IT!

The Southeastern VHF Society (SVHFS), North East Weak Signal Group (NEWS) and Mt. Airy VHF Radio Club (Pack Rats) have come together to sponsor this VHF “Super Conference”. It is being hosted by the Grid Pirates Contest Group (K8GP) and Directive Systems and Engineering.

For further information and to register for the conference go to <http://vhfsuperconference.com/>

Yet More On the . . .

VHFsuperConference

Thursday, April 14: 10am-6pm Guided Bus Tour (3 hrs) of Washington DC, and afternoon stop at Smithsonian Area Museums 7pm-Hospitality Suite & Swap

Friday, April 15: 8am-5pm Presentations, Vendors, Lunch with Speaker, Auctions 9am-4pm Washington DC Bus Transportation to Smithsonian/US Capitol/National Mall/Botanic Gardens area 7pm-Hospitality

Saturday April 16 8am-5pm Presentations, Vendors, Lunch with Speaker, Auctions 7pm-Banquet

Sunday, April 17 8am-11am Swap & Vendors

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).

This is how to watch SBMS meetings from home:

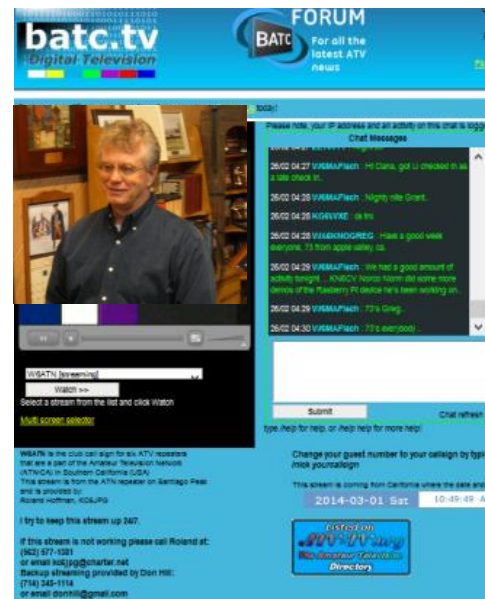
<http://atn-tv.org/live>

What you will see is this →

It's a British website (that's the B in batc.tv) You do not need to log in to be able to watch the video and participate in the chate. On the right choose "Repeaters" and then on the left, you have to pick a stream. The stream to choose is: **W6ATN**. This should be easy to memorize: W6 for California, then ATN as in Amateur Television Network.

W6ATN is the club call sign for eight 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 maintained by Mike Collis WA6SVT. From there Roland Hoffman, KC6JPG puts it on the internet by way of BATC.TV described above.



When Roland Hoffman is substituting for Gary Heston at the SBMS meeting, he streams to the internet directly by way of a mobile hotspot to a cell phone tower, thereby eliminating two lower bandwidth RF paths (SBMS to Santiago and Santiago to Roland's QTH).

What Our Members Are Working On

(Remember you can watch these reports live on <http://atn-tv.org/live>)

- **Courtney Duncan N5BF (La Canada)**
was in 10th place in the 2015 10 GHz contest but listed in QST as "N4BF." Only missed it by one. Wait a minute... Is that an error of 100 (10 to the second power) or 676 (26 to the second power)?
- **Pat Coker N6RMJ (Lake Los Angeles)**
was participating in the VHF contest last weekend until a gust of wind blew a tower over on his car. Nobody was hurt. The car is drivable and is getting fixed. Working on a "10 GHz from home" station and hopes to have it on the air by summer. Worked Kevin AD7OI this weekend, who is putting up the beacon on 10.368.370 at White Tanks at 4000 feet. Kevin is thinking about putting his 4' dish at 30-40 W for 3-4 weeks 24/7 pointing towards LA - 245 to 270 heading to see if we can hear it and will let us know when or if this happens.
- **Larry K6HLH (Lake Los Angeles)**
went to QuartzFest and operated his home station remotely from his motor home. Tried to work Ralph K6TSK on 1296 and also the low bands. His latest project is a noise figure meter (pictured) called the Cheap Automatic Noise Figure Instrument (CANFI) which is available for under 100 euros. Powered by USB, it consists of a dongle and preamp and runs from 40 meters to 2.6 GHz. Also has a noise source for calibration which is a copy of the one that W6PQL sells. It switches fast using a FET, has very few parts, is USB controlled, and is comparable in features to the HP models.
- **Rein Smit W6SZ (Alta Loma)**
has three 1200x800 pixel computers that are breaking mostly due to mechanical problems. He is pursuing an idea of building a software defined receiver (SDR) that can work off 12 V in the field. Jim Blum KK6MXP has a connection that might be able to help.



- **Mel Swanberg WA6JBD (Upland)**
has been busy with Cactus but has working on 2.3 GHz radios on his bench. Travelled to Chuckawalla, and other sites and established an 80 mile path on 2.3 GHz at 2 Watts.
- **Bill McNally N6MN (Seal Beach)**
is working in parallel with Doug to get 2.3 GHz EME stations on the air. (Doug is getting ahead due to better focus.) After waiting on the good euro to dollar ratio, got his 10 GHz DB6NT equipment a couple of weeks ago. One of those bands will be his first EME contact.
- **Jim Blum KK6MXP (Ontario)**
is collecting pieces parts for his radio. Has a new dish (no details). Is volunteering his time for Cactus.
- **Wayne Overbeck N6NB (Tustin)**
was in the VHF contest. Worked KB0ZO on 10 GHz, perhaps the last contact before the tower crashed. It was a pretty good contest. Stayed home, didn't rove.
- **John Oppen KJ6HZ (Riverside)**
bought some optical encoders for his EME station.
- **Roland Hoffman KC6JPG (Rancho Cucamonga)**
finishing a 2.4 GHz amplifier for ATV and working on 5.910 GHz ATV from his home QTH.
- **Don Hill KE6BXT (Mission Viejo)**
went to Quartzfest.
 - Don also went to the SoCal Linux expo and manned a booth there showing microwave setups. There was also an HF station, a mesh node for VOIP phone, and cameras at both locations.
 - He gave a presentation last Saturday to SATERN, the Salvation Army team for amateur radio. Several people in SATERN are interested in MESH.
 - And he went to the Laguna Woods ARC meeting today. Several people want him to come over and set up MESH at their houses.
- **Gary Heston W6KVC (Running Springs)**
was at Quartzfest for two weeks. Went out early to do science fair radio with the kids there and demonstrated ATV and SSTV. Gordon West WB6NOA and Tracy Linacker each had booths that kids came to. Every child from 4th to 8th grade was given a radio. Many of these kids are in poverty and don't even have internet so anything can help. Check out Utube, Quartzfest, past the opening ceremony, for the events with the kids.

- **Frank Kromann AG6QV (Trabuco Canyon)**

turned on his contest radio and nothing happened. Found the fuses blown and fixed them, still nothing happened. Located two twenty-year-old capacitors that had shorted. Capacitors replaced, the rig is now working again. He is planning a 33 inch dish modification to his rig.

- **Marty Woll N6VI (Chatsworth)**

is spending a lot of time at ARRL board meeting and activities, and interviewing replacements for Dave Sumner K1ZZ, retiring ARRL CEO. Received a shipment of DB6NT 10 GHz transverters and 10 W PAs and WR-90 preamps and Dick WB6DNX found him a 10 GHz switch, so he is looking forward to a better performing rig than his current one.

- **Walter Clark (Fullerton)**

was at an Maker Faire type event: a local once a year thing called "SparkleCom" that drew about 200 people. (The real MakerFaire draws 100,000). There were about 20 race drones flying around a vacant lot nearby. There was a pair of BattleBotts going at each other. Jason WB6IEE was at SparkleCon. → Walter learned that Jason has lost interest in microwaves for now. His present interest involves big old transmitting vacuum tubes. One project is a Tesla Coil that uses two big glass triodes.

- Walter brought as a demonstration of last month's Electronical Mystery of the Month. It was a 2.4 GHz (Part 15) source with field strength meter. The lesson was that polarization has to do with orientation defined by the spacing between the two halves of a dipole rather than the orientation of the elements themselves.
- Walter is being coached by an elderly physicist on Maxwell's Equations and is hoping to develop actual microwave hardware to illustrate the math.



- **Doug Millar K6JEY (Long Beach)**

is planning EME on 2304.105 CW at 0000 Z. This will be his first EME contact on that band. Needs help to put everything away and leave by 5 p.m.. Fallback is to do it on the 19th when declination and loss are better. VK3UM software

predicts that both can work. On the other end, Mike is running a 30 foot dish and lots of power. Doug is running 65 Watts but the system hasn't been tested. Has an AMCO directional coupler 40 dB, can measure power at 2304 easily. Has an LMR-400 stripper tool and a curving knife, almost a very fine toothed Xacto knife that makes perfect N connectors. It wasn't cheap but beats soldering.

- He is also developing a way to be able to tune from 1-3 THz with a superheterodyne receiver that beats two lasers together. The system is digital and on a chip with the antenna on it, 1 cm away from another chip with the receiver on it. This is the best way to get signals from one part of a circuit board, or die, to the other, with less loss.

One problem: it needs a 10^{-14} accurate cesium oscillator.

- **Bremer WB6DNX (Brea)**

is playing around with a system on the MESH network. Took one up to Carbon Canyon site and did field strength readings at the reservoir. There is probably enough signal there for a repeater to go into the canyon.

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| Courtney Duncan (N5BF), Recording Secretary |
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Tech Talk Last Month

At the February 4th, 2016 SBMS meeting, Wayne Overbeck N6NB and Greg Campbell W6IT showed us the microwave aspects of photographic quadcopters.

These seem to be within the microwave ham bands but the quad-copters are not licensed in the amateur service.



Microwave Mystery Gismo of the Month

OK, this is too easy, so the mystery is not what it is, but “when” it is. That is, when was this first manufactured.
And for extra credit; what does the screw in the back do?

If you can identify why, 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



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

- **For Sale from Bill Burns:** Bill will only rarely comes 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

This from Bill Burns:



For Sale Dish Trailer

Pick up bed trailer with elevation over azimuth positioner driving a 4 foot dish with a 10 GHz WA6EXV style water pipe feed. See pictures. Trailer is licensed and has lights and a 2 inch ball hitch. Positioner is manual hand driven in both axis. There are bolt fixtures to lock down the dish during travel. Runs good on the highway. Has been used on mountain top rover operations. All for \$450. Bill WA6QYR bburns@mediacombb.net or 760-375-8566.

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.

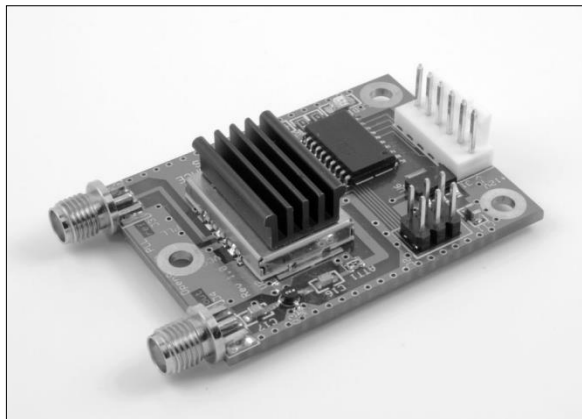
For examples of his work click on... <http://www.kl7uw.com/kits.htm>
Contact him at kl7uw@acsalaska.net



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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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).***

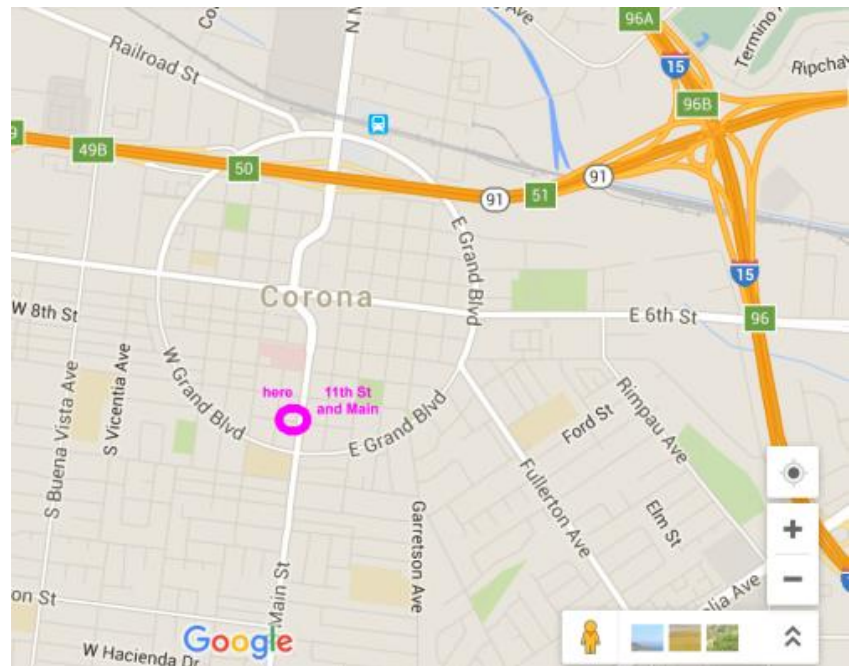
Official Address

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.

Map →

**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

Services Sponsored by SBMS

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

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

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