



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

Dinner Before the April Meeting NEW PLACE (see below)

Tech Talk for the April 6th Meeting . . .

"Microwave Power Meter Accuracy and Measurement Clinic"

Dr. Doug Millar, K6JEY has been past SBMS President, an ARRL Technical Advisor and author of the Amateur Radio Handbook Ch. 26 "Test Equipment and Measurement" from 1995 to 2011. He has been entering and winning EME contests on several bands since 1994 and continues to do so. Doug will hold a **power measurement clinic at the next SBMS meeting on Thursday, April 6th.**



More on this Thursday's Tech Talk

Two power meter sensor calibrators will be available to measure sensors from +20dbm to -70dbm. You can also bring your spectrum analyzer for a look at its amplitude calibration. Bring both your meter and sensor. The presentation will cover accuracy limitations of thermocouple and thermistor power sensors and some of the calibration techniques used to insure accuracy.

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

Or watch the meeting "live" on the internet: <http://atn-tv.org/live> (see below for more)



← This is the PRD 670 thermopile AC/DC transfer standard. AC or DC input equals a known DC output.

Below is a picture of the Boonton 2520 power meter calibrator. It only has three attenuators in it and stores offset in an EPROM. It's output is 30MHz and there is a bit of a story as to why.



Activities of the November SBMS Meeting

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

Presiding: Rein Smit W6SZ (18 in attendance... 16 last month)

New Business

- **Dick Bremer WB6DNX:** Dues are due next month at the April meeting.
- **Brian Thorson AF6NA:** We have received many requests on the web to make our meeting into a U-Tube.
- **Walter Clark and Dick Bremer** have scoped out Marie Calendar's which is closer to the club meeting location than Sizzler and recommend going there at the April meeting.
- **Marty Woll, N6VI:** California Assembly Bill 1785 was signed just before end of the last calendar year. It amends the California Vehicle Code about distracted driving with handheld cellular phones. The language with respect to iPads and other such electronic devices is vague. Marty is on a team who is meeting with an Assembly staffer in Sacramento to get clarifying language included in an amendment. Another AB that explicitly outlaws all handheld microphones will be tracked.
- **Marty** also reported on the Forest Service restoration bond issue intended to finance removal of improvements from leased sites at end of extended leases. Any occupier of a site has to deal with this at their next lease renewal. Some are a few years away, others are immediate. Required bonds range from \$10,000 to \$100,000 and amateur radio organizations (repeaters and beacons) do not qualify (Marty continued) but would have to come up with cash. There was a meeting with the Forest Service in November about a payment system building up these cash levels over 30 years, which would be more manageable for amateur organizations. Robin Critchel WA6CDR is at the forefront of the effort. This Angeles National Forest policy will be the nationwide prototype and it could ultimately extend to sites managed by the Bureau of Land Management.

Old Business

- Mel Swanberg WA6JBD: The 2.3 GHz beacon has been operating at his house for about a month. Proposes that SBMS purchase an antenna for the mountaintop antenna and has identified a candidate horizontal omni antenna on E-Bay in the \$200-\$300 range which is similar to an antenna he is currently using at the house. Installation is planned for Johnstone Peak and will also require a feed line, which can be scrounged. This motion for SBMS to purchase the antenna passed on a unanimous voice vote.
- Dave Laag W6DL: No progress on the Local Oscillator project. Need board layout volunteers so we can make samples. Need someone to make aluminum boxes. Need volunteers for other such small tasks.
- Dave W6DL: Has a badge machine which William Locke bought for about \$180. (picture above)



What Our Members Are Working On

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



Pat Coker N6RMJ (Lake Los Angeles)

is working on 10 GHz from home 9 watt station on his 75 foot tower. Worked Rein W6SZ S-9 this morning. Tried Dave W6DL and heard something but did not complete a QSO. Worked Chuck N6EQ across the desert before Chuck sold his rig.

Dave Laag W6DL (Marino Valley)

will report on current activities in April.

Bill Locke N6WL (Baker)

Could not hear Mel's beacon with 2.3 GHz rig.

Rein Smit W6SZ (Alta Loma)

worked Pat N6RMJ this morning via Keller Peak bounce. He has to put his antenna out in the street for this which exposes it to a threat of blowing over again. Got his Raspberry Pi to work with new WSJT. Compiled from source successfully.

Mel Swanberg WA6JBD (Upland)

said the 2.3 GHz beacon needs final packaging. A spider and water detuned his 3 cm antenna which is enclosed in a piece of PVC. It went from 30 dB return loss to 6 dB but has now been restored through retuning so now it acts like an antenna again but don't know yet power handling. No 10 GHz beacons are working right now. Mel can't ordinarily hear Frazier or San Diego beacons. Greg K6QPV would talk to him about it.

Walter Clark (Fullerton)

brought us up to date on John Open KJ6HZ with an explanation of his recent absences. From 2013 - 2015 John has worked at a Boeing facility and has been living in a hotel supporting a USAF tanker program. He repairs damage on commercial aircraft which is a 24/7 activity. His weeks off are out of phase with SBMS meetings and when they get back in phase his sleeping schedule will be out of phase. He has his 10 GHz rig working on a wobbly Dish 500 reflector at 200 milli watts but would like better mechanical engineering and appearance for the setup. Attempted "home to home" a few months ago but has a large hill in the way and even operating from the top of his house in an attempt to bounce off Santiago it would still be a double bounce to Mel WA6JBD or Rein W6SZ. Also the beacon is off so he doesn't know his exact frequency as his TCXO drifts 10 KHz per day. John is also playing with HF, has good equipment and is doing DX to the south and east. He is also working on a 10 foot dish for EME.

Larry Johnston K6HLH (Lake Los Angeles)

finished his 2556 MHz LO last week. It is based on ADF 4351. Mel WA6JBD is going to measure the phase noise. Listened for the 2.3 GHz beacon yesterday but did not hear it because of the tall mountains in the path from WA6JBD to K6HLH QTHs.

Jason Sogolow WB6IEE (Norco)

as gotten interested in 630 meters. Is filling out Part 5 Experimental license application.

Greg Bailey K6QPV (La Mesa, CA)

was helped by Barry VE4MA in putting some elliptical guide on his dish.

Barry Malowanchuk VE4MA (WINNIPEG)

has been visiting Greg K6QPV. Has been in Arizona since New Year's Eve and goes back to Canada at the end of March. He would like to see an activity night on 1296 in Arizona. Lots of amateurs could be doing it but don't know when other people are on the air. Many are working on dishes for EME.

Kerry Banke N6IZW (La Mesa CA)

brought his 10 GHz Fox Hunter as seen at MUD last year for demos. He has been working for the last year on a power supply system for the amateur equipment on the International Space Station and spent a week at Johnson Space Center running tests on the qualification units. The next step is to build the real units, one for the US module and one for the Russian module. ISS has 84 KW solar power system which provides 160 volts DC to batteries that is then converted to 120 volts DC which is the main distribution. Some places have 28 volts DC. The issue on ISS is the number of available power outlet plugs so hams get unplugged for other things frequently. This power supply therefore works from the different available voltages. Kerry has about a year left on this project.

Courtney Duncan N5BF (Eagle Rock)

Worked Barry VE4MA in Arizona via EME and exchanged QSLs for Manitoba and Arizona at this meeting. Having worked Belgium, is up to 21 DXCC worked on 1296 MHz EME. Has had problems with water in coax during the recent rains. So far has worked 53 unique stations (including Barry twice at his two different QTHs) and has identified from watching online that there are about 110 workable ones out there now. (Courtney

Continued)

Daydreams about a broader bandwidth (computer for dongle / Map65) is on hold for coax (water in) repair. Listens to K6QPV/B in San Diego on 1296.3 MHz as default for start and end of EME sessions to check receiver operation. Courtney's history on 1296 goes to before he started coming to SBMS and his work has depended on the beacon for at least ten years. Doesn't see it well on the direct azimuth but has a strong reflection from a nearby hill. Worked JA8COE driving down here (Hokkaido Island) on 17 meters while driving in stop and go traffic on the 60 Freeway. It was the only signal on 17.

Jeff Fort KN6VR (Phelan)

brought a book to show to Frank AG6QV (who has moved up north). Waiting for warmer weather to continue outdoor work.

Dave Glawson WA6CGR (Wilmington)

tried to work Pat this morning. He was right at the noise level and could barely hear his carrier tone. Is not hearing the 2.3 GHz beacon and doesn't know why. Got a book from Hank W6GGV all about wire gauges and diameters and inductances. Single Layer Solenoid Design, 1967.

Marty Woll N6VI (Chatsworth)

at his last trip to the W6TRW Swap Meet last month ran into Dave N6TEB and Kent K6WCI who were there selling off stuff like spare WR-42 pieces. Thinks he now has enough for a 24 GHz system now and may be ready for a test during the May "2 GHz and Up" event.

Dick Bremer WB6DNX (Brea)

said that Tom Board WB6HYH is not here today because he has been in the hospital but expects to be back to future meetings. Dick pointed a 2.4 GHz loop Yagi through garage door in the rain but didn't copy Mel's beacon. Will try again when dry.

Wayne Overbeck N6NB (Tustin)

asked if anyone was interested in going to Cape Verde Islands to try to break the world DX records on 2, .70, .33, .23, .13, .06 m., etc. E-mail Wayne for information. There is lots of interest in working Tropo across the Atlantic. The beacons on Monte Verde mountain: 144, 432, 1296, have been heard in Ireland 3000 miles to the north and Venezuela 3000 miles to the west. Wayne is interested in putting together a team to get on both ends of the path. The US Navy says this is an elevated duct. Wayne thinks there are some mountains in Puerto Rico high enough to get into it and has a suitcase portable rig that can go on a plane. Two of those bands (2304 / 2320 and 3456 / 3400 MHz) are not compatible with Region 1. Has ordered DB6NT transverters for those paths. This is a very difficult, long shot. If it was easy, someone would have done it already. Wayne wants Marty N6VI to go May/June to Cape Verde while Wayne goes to Puerto Rico.

Events of Interest to the Microwave Ham Community

May 4	SBMS Meeting
May 6, 7	SBMS 2 GHz & Up Contest & CSVHF Microwave Sprint
May 19, 20	Bay Area Maker Faire (world's largest)
June 1	SBMS Meeting
June 10, 11	ARRL June VHF Contest (Six meters through light)
June 24, 25	ARRL Field Day
July 6	SBMS meeting
August 3	SBMS meeting
August 5, 6	ARRL 222 MHz & Up Contest (Inaugural; distance-based)
Aug19, 20	ARRL 10 GHz & Up – Weekend #1
September 7	SBMS Meeting
September 9 – 10	ARRL EME Contest, 2.3 GHz & Up
Sept 16, 17	ARRL 10 GHz & Up – Weekend #2
October 5	SBMS Meeting
October 7 – 8	ARRL EME Contest, 50 – 1296 MHz, 1st weekend
October 27 – 29	Microwave Update 2017, Santa Clara, CA
November 4 – 5	ARRL EME Contest, 50 – 1296 MHz, 2 nd weekend

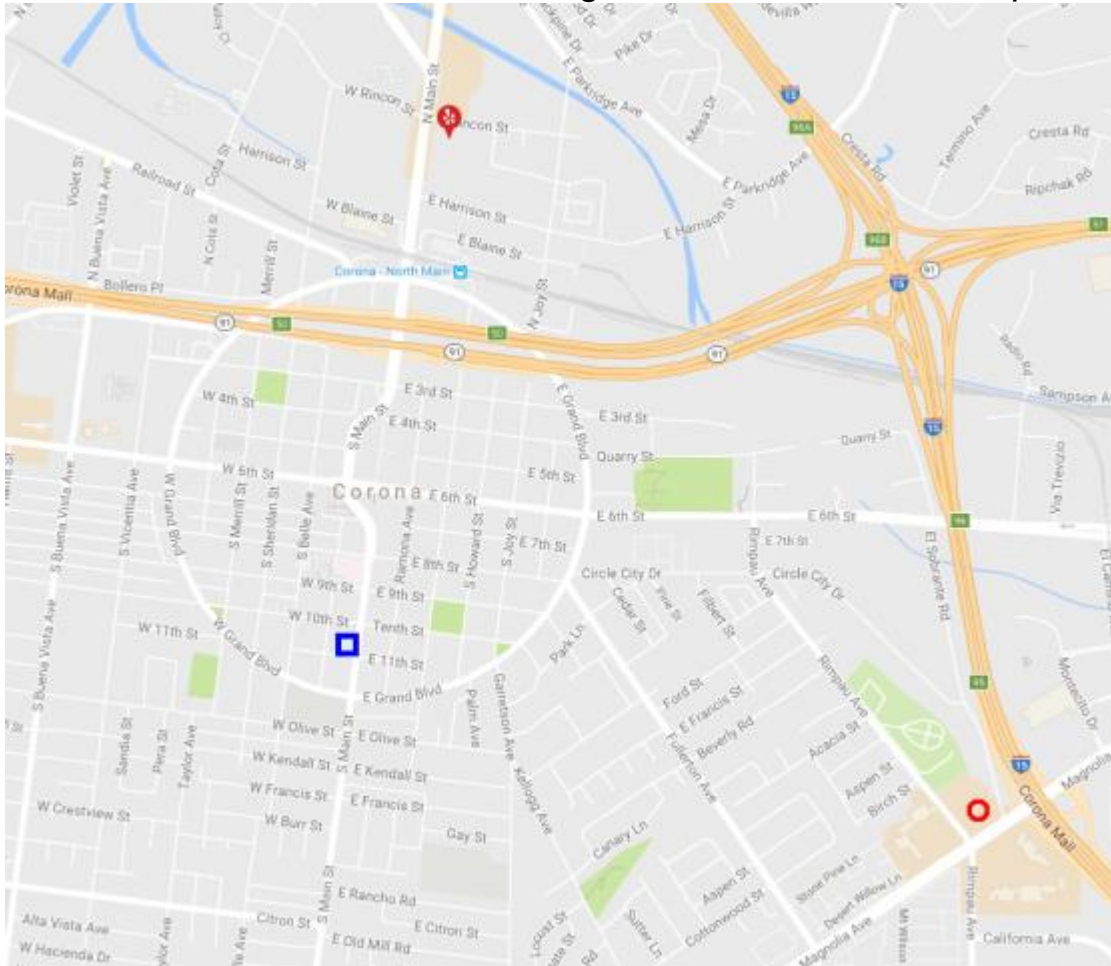
If you have other events or more information on the ones listed; information that would help people decide whether to go or not, please send it to the editor at the email address below.

Dinner Before the Up Coming Meeting **NEW PLACE:**

“Dinner-Before” is like a people capacitor in that it is a gathering place for those who are trying to beat the traffic and have a variety of distances to come from. Some arrive as early as 4:00.

This month: Marie Calendar’s is on the other side of the 91 but as you can see here, much easier to get to our meeting place. (160 E Rincon)

Dick and Walt checked it out before the March meeting and seems too good to be true. There’s the main dining hall of course, but three private



rooms. The Library Room seats 10 to 15. The Garden Room that seats 20 to 30 and the upstairs for 30 or more. These rooms are always available on week nights. No special menu and we don't have to come at the same time.

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). The RF signal that goes to the Amateur Television Network (ATN) uses DVGT (Digital Video Broadcast-Terrestrial) standard. It is the European standard for over the air TV. The "terrestrial" part is a format that is better with multipath. The only difference ATN has done is use 2 MHz B/W to fit within the 433-435 space between the weak signal and satellite sub bands.

- He transmits analog first.
- Snow Peak is the first digital station.
- There is a 2-3 second delay to digital users.
- There are also nodes on Mt. Potosi and Mt. Lemmon.
- Note: some meetings are recorded for archive.



Home to Home This Wednesday Evening; (don't forget)

Rein Smit, W6SZ (Alta Loma), President SBMS is encouraging all Southern California microwave hams to try contacting each other from their QTH the night before the SBMS meeting.

**The intent is to learn home
to home capabilities and to
discover tricks to use them.**

Wednesday April 5th, 10,368.100 MHz, CW or SSB.
WA6JDB, N6RMJ and W6SZ will be looking/listening for your signals.



Don't forget, this Wednesday, April 5th is 10 GHz activity night. We'll be listening on 10368.100 starting at 21:00 PDT. I'll actually start listening at around 20:30, time permitting.

We have been using the LARA Santiago repeater for liaison. Since that doesn't cover the high desert, we will use the LARA/Cactus repeater located on Heaps Peak, so the desert dwellers can check in,

The frequency is 448.86- PL 100.0 It will be configured in a stand alone mode so it doesn't bother anyone.

Mel - WA6JB

Pat Coker's Prodelin on
his tower. 9 watts at 75'

"Provided a time sufficiently before or after the QSO party's time, W6SZ can position his radio before his home and can then utilize Keller Pk as a bouncing point for working points to the north."

Rein W6SZ

Microwave Mystery Gizmo of the Month



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

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

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

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

The March Tech Talk was Given by . . .

Barry Malowanchuk VE4MA

Barry graduated with a BSEE from University of Manitoba in 1974. Barry worked on telecommunications for Manitoba Hydro (an electric utility) for 37 years as a Registered Professional Engineer until his first retirement in January 2011.

Barry was active on 432 in 1966 and 10 GHz in 1968 using his father's call VE4MA and was first licensed as VE4MA in 1975. Barry has been active on EME since 1974 and has operated EME on all bands from 432 MHz to 47 GHz and has been involved with the first 78 GHz EME experiments.

Barry has authored and presented many amateur conference papers on EME, dish feed horns, solid state and vacuum power amplifiers, and low noise amplifiers.

Barry has received the following awards:

- 1. The Central States VHF Society John Chambers Award in 2000 & again in 2008**
- 2. The ARRL's Microwave Development Award in 2003**
- 3. The Northern Lights Radio Society's Wesslund Award 2008**
- 4. The North Texas Microwave's Hilliard Award in 2015**



His presentation on the equipment he uses for his EME work in Arizona is available at the SBMS website...

http://ham-radio.com/sbms/presentations/VE4MA/desert_eme.pdf

Needs, Wants and For Sale (updated 29 January)

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@symbolmediacombb.net

His address is: 247 Rebel Road Ridgecrest CA 93555

- 1 meter offset feed dish and 10 GH feed \$20.
- Andrews Microwave dish 8 ft solid aluminum *free*
- Steel TV push-up masts *free*
- Lengths of aluminum tubing, ½ inch to 3 inch diameters, 1/16th wall *free*
- Stainless steel powder cans 15 inches in diameter by 23 inches high with lids *free*
- Rocket boxes 11 inches by 11 inches by 28 inches *free*
- Power pole 14.5 ft tall by 1 ft diameter *free*
- Many round meters, ma, volt, frequency, misc. *free*
- Mobile HF antenna elements (poles \$20 and resonators \$20) for mounting on a spring on your bumper (if you happen to have a bumper on you late model car).

Member Ads

Sixty North Electronics (as of October 1)

Ed Cole has begun a new line of 2m 80w Linear Amplifiers which can be seen on my website:

<http://www.kl7uw.com/kits.htm>

Ed can no longer order kits from Down East Microwave which are to be resold as assembled units. However if you have purchased a kit and decide not to build it yourself, he can assemble that kit and for no shipping charge, send the working radio back to you. You will have to pay DEMI for shipping and of course pay for shipping the kit to Ed. For details and assembly rates contact Ed at the email address on the next page.

Ed can now do PayPal Sales of the popular "WA2ODO" preamps built by Pete Manfre. This covers 50-MHz thru 2.3 GHz. If not wanting to use PayPal contact "Pete Manfre" [pmanfre at-symbol gmail.com](mailto:pmanfre@symbolgmail.com), directly. [http://www.kl7uw.com/WA2ODO PayPal Sales.htm](http://www.kl7uw.com/WA2ODO_PayPal_Sales.htm) He will also make many of the kits offered by Jim Klitzing - W6PQL: [http://www.w6pql.com/parts i can provide.htm](http://www.w6pql.com/parts_i_can_provide.htm)

Contact Ed for a quote.

**All of Ed's work is covered with a 90-day warrantee on workmanship.
Ed Cole <kl7uw at-symbol acsalaska.net>**

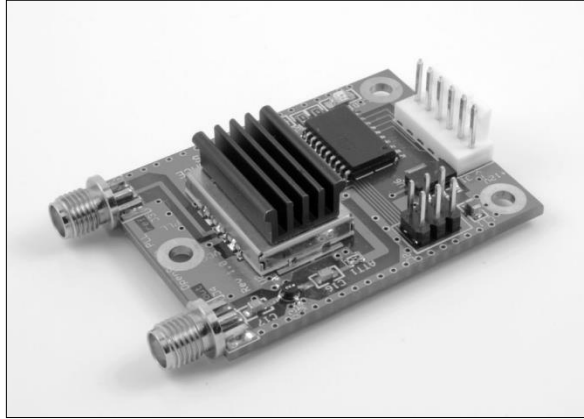
For examples of his work click on... <http://www.kl7uw.com/kits.htm>



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>



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 at 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

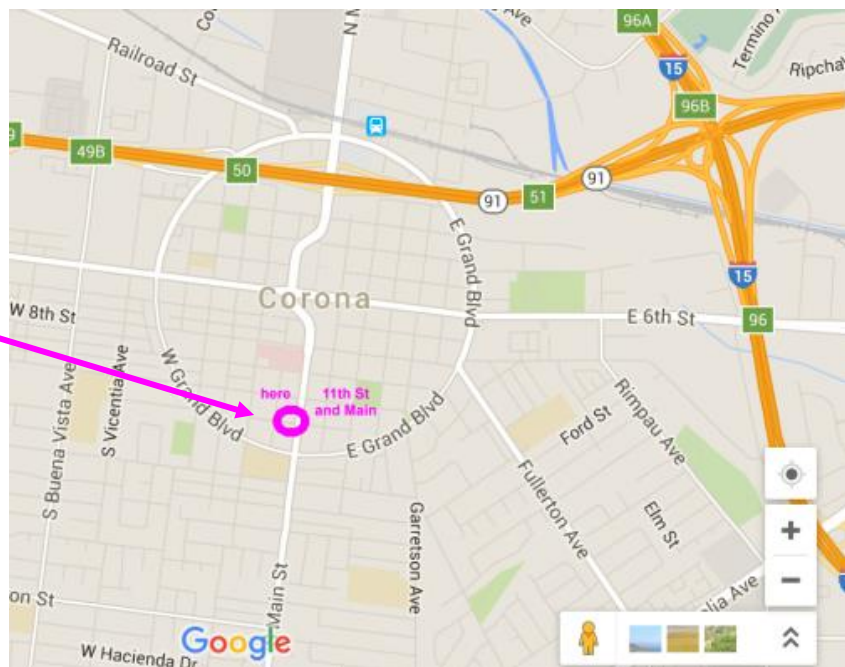
SBMS dues are \$15 per year, which includes a badge and that's about it. The dues are more in the way of a donation to pay for outreach things such as video portals, a bank account, and rent for the building. When to pay is not a matter of remembering. The Corresponding Secretary will contact you by 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**

**Google Map:
Keywords: American
Legion Hall, Corona**

For carpooling from North
Orange County call Dick
Bremer at: 714-529-2800

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>



Services Sponsored by SBMS

The Reflector (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> After that, Send your email message to: sbms at-symbol 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.)

Responsible person for this: Dave Glawson WA6CGR wa6cgr at-symbol ham-radio.com

Website: Rein Smit W6SZ: rein0zn at-symbol 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 at-symbol roadrunner.com](mailto:walterClark@symbol.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 the above

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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 at-symbol roadrunner.com
- Time sensitive questions, reports or just plain bragging is for the SBMS Reflector. Send your email message to: sbms at-symbol ham-radio.com. To sign up go to:
<http://lists.altadena.net/mailman/listinfo/sbms>

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