



SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1988

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

SBMS Newsletter

Before the Meeting: Sizzler's yet again. (dang)

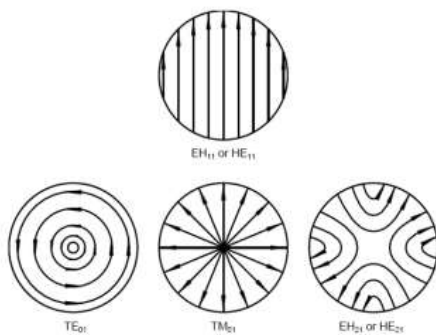
Tech Talk for the Meeting of June 7th . . .

Walter will be giving a talk on polarization. This includes his famous Spinning Field Strength Meter which reveals visually, the orientation of the E-field.

Also discussed: circular polarization, ground wave vs sky-wave. There will be a demonstration of an inside-out wave guide (G-line). Also discussed are various confined wave polarizations.



Confined Wave Polarization



Weirdest of all, will be a demonstration of "unconfined" radial polarization. Useless but interesting.



Party After The Tune Up

Fairview Park in Costa Mesa has been reserved. It is July 28th. Traditionally there's been a BBQ at Dennis Kidder's when he lived in Fullerton. Twice it has been at Walter Clark's also Fullerton. Walter would be delighted to host it again. He lives exactly north, easy to get to, but it's 15 miles. Please think about other ways to celebrate the end of testing, so we can discuss it at the meeting.

Activities of the March SBMS Meeting

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

Jason Sogolow W6iEE Presiding

Guests, or been gone a while

(None)

No ATV check-ins.

Signals were poor tonight due to the trees across the street to the south.
(Not clear what Gary's going to do.)

New Business

- **Bill Locke N6WL** recommended Keysight and RF Design sponsored webinars. The 5/16/18 session is on phase noise and ways to measure it. The April webinar was on calibration of network analyzers. The webinars occur on Wednesdays at 10 a.m. PDT. If you register they send you a link where you can view it later.
- Vice President **Mel Swanberg WA6JBD** relayed from Barry W7BF that Homeland Security was going to be doing tests and bothering GPS for the next few days. There would probably be a NOTAM (Notice to Airmen) about this.
- **Mel** also put out the call for Technical Talks for the coming year. Several responded to a show of hands on how many were working on projects that they could talk about at some point. Mel also requested input on topics that the society would like to hear about. We will have a couple of meetings with test equipment during the year.
- **Brian Thorson AF6NA** announced that Fairview Park is reserved for 7/28/18 for our annual tuneup.

Old Business

- **Pat N6RMJ** passed around a list of who will be on for the 2 GHz and up contest, sponsored by SBMS, this coming weekend and asked operators to put down their times and locations of intended operation. AD7OI was planning to attempt to work northern and southern California operating from Mt. Eldon in Arizona. Sites that could attempt Eldon from Southern California were discussed.
- Mel WA6JBD announced that Cactus could be used for the event except for a brief test involving Orange County Saturday from 9:00-9:15 a.m.
- Internet access for the American Legion hall was discussed.
 - The Legion had no problem with it and would be discussing it at their meeting the following Monday. There is no American Legion internet access in the building now but a WiFi survey taken in real time found that eight wireless spots were within reach, not including hot spots available from attending member's smart phones. (If a paid for connection was opted for) It was estimated that SBMS would end up paying at least \$60 / month for service.
 - The question of what we would use internet in the building for was then discussed. The stated goal was to put meetings on the air in spite of the trees currently obscuring the path to the Santiago ATV repeater. Vice President Mel Swanberg WA6JBD pointed out that this appeared to only encourage participants not to attend meetings in person.
 - It was also stated (by Mel) that it was impressive that we ran an actual microwave amateur radio ATV link out of this site monthly. He suggested putting money into improving the existing ATV system rather than spending \$720 / year or more for service that we would use for only two hours a month. The current system runs an 18 Watt uplink to 26 dBi antenna on 2441.5 MHz with a downlink of 5910 MHz. System improvement options included mounting a permanent ATV antenna on the building, using a pushup to get the antenna higher, using a higher power amplifier, and getting the trees trimmed.
 - The discussion ended without a motion or resolution.

What Our Members Are Working On (Activity Reports)

Pat Coker N6RMJ (Lake Los Angeles)

announced that Lazarus, the current 10 GHz rig on his tower, had died again. After working on it for twelve hours in the SBMS lab at WA6CGR, it was decided to give up. Pat will keep the equipment but does not plan another revival attempt in the foreseeable future. His amplifier had been shipped back to Germany where they were having trouble finding a part. When it comes back he plans to rebuild everything on the tower in a small box that he got from Dave WA6CGR. Was on last night for the home-to-home event with the portable rig at 10 W. and worked Jim KK6MXP. CW was heard by Mel WA6JBD. Pat was also heard by Rein W6SZ who could not transmit.

Chris Williams W6NOB (Wrightwood)

is still working on his 10 GHz rover rig.

Rein Smit W6SZ W6SZ (Alta Loma)

is getting his 10 GHz transmitter working again. He hopes to be on by next month's home-to-home or maybe even this weekend's the contest. He was with K6JEY on DUBUS 23 cm EME weekend where K5SO was heard.

Steve Barden WA6OXN (Riverside)

is getting involved with a Hack RF 1 MHz -6 GHz transceiver that he showed around the room. The dongle works with a PC laptop and Steve offered to give a future presentation about it.

Robert Carter KM6RXN

has his new callsign and is testing a transverter he is building. He continues to work on his optical communications equipment.

Eric Forte AF6EP (Phelan)

says that the DB6NT transverter is a bargain compared to the cost of the pieces so he is trying to figure out about why the pieces are so expensive. He is designing a chain from audio to RF and RF to audio at microwave and wonders if it would be difficult to do by direct conversion.

George Kashmar (Irvine)

Brought the parts tonight that he is using to put together the microwave filter he reported on last month.

Bill Locke N6WL (Baker)

has been mostly on VHF/UHF but he is working on getting his 10 GHz rig together. He plans to drive a 5 watt amplifier and is also looking at LNAs, in particular, techniques to design, build, and measure LNAs, or convert satellite ones to amateur use.

Dave Laag W6DL (Marino Valley)

bought LNAs on E-Bay that are centered on 9-11 GHz and claim an intrinsic noise figure of 0.35 dB. They were one dollar a piece so he bought several. A corresponding datasheet can be found on the California Eastern Lab website. Dave also made progress on his new 10 GHz radio. All the pieces are on the bench nearly ready to pull together. The system is phase locked to a Rubidium oscillator and can hear the Santiago beacon. All parts are working; all that remains is assembly appropriate to field use.

Dan Slater AG6HF (La Habra Heights)

picked up some cellular filters at a previous meeting, put them on a VNA, tweaked them up, and learned enough that he has a good feel for them now.

Dick Bremer WB6DNX (Brea)

got his 10 GHz board finished since the last meeting thanks to Larry K6HLH's help. He did flow solder assembly by running it through his wife's oven. Also made a scope cart out of a harbor freight welding cart which makes moving the scope around the shop nice.

Jason Sogolow W6IEE (Norco)

went out to Downy and picked up a 6' dish with feed and elevation mount. Now he only needs a truck differential and tower for azimuth mounting.

Mel Swanberg WA6JBD (Upland)

worked some more on his new X-Band rig. The 2 GHz beacon is off for the moment but Mel did talk to Gary WA6MEM at Heaps Peak where there are 2304 MHz and 1296 MHz antennas from previous beacons and the translator that Chuck WA6EXV had maintained there. Mel has inquired if we can put our new 2 GHz beacon at Heaps and plans to reprogram and install it there instead of Johnstone Peak. The job will be quicker since the antenna work is already done.

Jim Blum KK6MXP (Ontario)

needs a manual WR90 waveguide switch to quickly switch (but not hot switch) between his 2 foot feed and omni antennas in the field.

Courtney Duncan N5BF (Eagle Rock)

reports that his 23 cm EME antenna tower crashed due to a broken rope during maintenance. Damage and injuries were minimal but the system was redesigned as a result. The following weekend worked 14 CW QSOs in DUBUS 23 cm CW EME event. The new 10 GHz setup is ready for its first field outing. Heard but did not measure sun noise on it.

Events of Interest to the Microwave Ham Community

June 9 – 10	ARRL VHF (& Up) Contest – get on the microwave bands
June 23 – 24	ARRL Field Day – do microwave demo for your local club
July 5	SBMS Meeting
August 2	SBMS Meeting
August 4 – 5	ARRL 222 MHz & Up Contest – Theme is: distance
August 18 – 19	ARRL 10 GHz & Up Contest – 1 st weekend
September 6	SBMS Meeting
September 8	ARRL VHF (& Up) Contest – get on the microwave bands!
September 15	ARRL 10 GHz & Up Contest – 2 nd weekend
September	ARRL EME Contest – 2 GHz & Up
October 4	SBMS Meeting
October 12 – 13	Microwave Update 2018 – Fairborn, OH Holiday Inn
October ? - ?	ARRL EME Contest – 1.3 GHz & Down – 1 st weekend
November 1	SBMS Meeting
November ? - ?	ARRL EME Contest – 1.3 GHz & Down – 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.

Microwave Beacons for Southern California

Los Angeles

San Antonio Heights 2304.320 MHz W6IFE/B 27dBm

Transmitting grid for Johnstone PK

DM14ed -117 39 06.0 34 09 14.0 6436'

Frazier Mtn. 10368.310MHz N6CA/B 1.3W

DM04ms -118.96948 34.7751 8027'

Santiago Peak 10368.330MHz AF6HP 2W

DM13fr -117.53401 33.71098 5681'

Palos Verdes 10368.300MHz N6CA/B 1.6W Out of Service

DM03ts -118.37642 33.76761 1200'

Phoenix

White Tanks 10368.375MHz W7ATN/B 2W

1296.270MHz W7ATN/B 10W

DM33rn -112.56000 33.56861 3992'

San Diego

Mt. San Miguel 10368.360MHz K6QPV/B 1W

5760.300MHz K6QPV/B 2W

3456.300MHz K6QPV/B 10W

1296.300MHz K6QPV/B 12W

DM12mq -116.93516 32.69793 2500'

All beacons are horizontally polarized.

To update this list:

- contact Mel Swanberg or if you don't have his email,
- use the Reflector. Mel or the Newsletter
- Editor will see it there.

Home to Home This Wednesday Evening

Rein Smit, W6SZ (Alta Loma), Past 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.

The Wednesday before the meeting: 10,368.100 MHz, CW or SSB.
WA6JDB, N6RMJ and W6SZ will be looking/listening for your signals.

We'll be listening on 10368.100 starting at 21:00 PDT. 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 standalone mode so it doesn't bother anyone.
Mel - WA6JB



← Pat Coker's Prodelin with 9 watts; no-longer on his tower but now with added elevation control.

Currently the transverter is dead and preamp, have new ones ordered. He will be on Wednesday as portable and for the 2ghz and up contest portable.

"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

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 chat. You will be automatically put into the right video channel. It is W6ATN. The "W6" for California of course and the ATN is for 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 a 2.4415 GHz FM video (analog) signal to the ATN repeater on Santiago Peak maintained by Mike Collis WA6SVT. (Gary monitors the signal from the repeater on 5 GHz.) From Santiago Peak on 5 GHz Roland Hoffman KC6JPG puts it on the internet by way of the website BATC.TV described above.



The ATN network linking is all done using FM microwave links on 2.4 GHz and 5 GHz bands. All ATN repeaters in Arizona, California and Nevada now have DVB-T (Digital Video Broadcast-Terrestrial) on 434 MHz input. Analog on 434 still works as well as the FM standard on 2,441.5 MHz. The DVB-T is the European standard for over the air TV. The T part, "terrestrial" is a format that is better with multipath. The only difference (which the US based) ATN has done to that standard is use 2 MHz B/W to fit within the 433-435 space between the weak signal and satellite sub bands.

- Gary 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.

When Roland Hoffman is substituting for Gary Heston, 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).

May Meeting Tech Talk:

Brian Thorson demonstrated, or rather talked about his red laser light wave system. This is derived from Robert Carter's presentation the month before. So when Brian succeeds, finally somebody with a higher frequency than Doug.

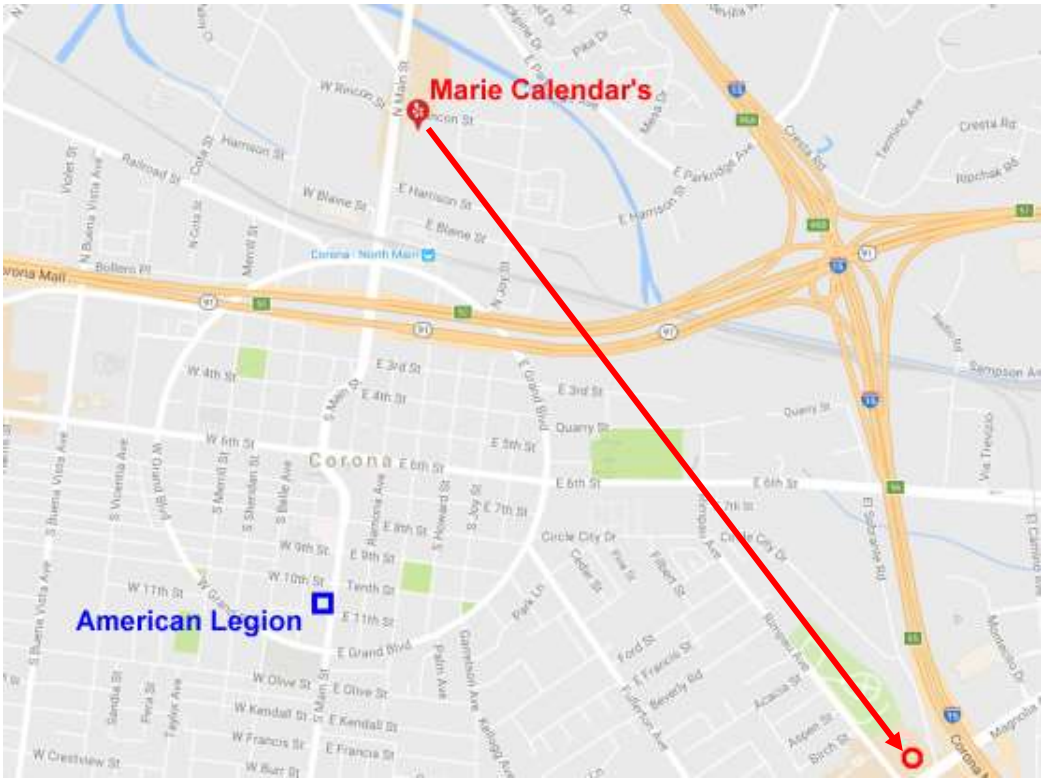
Brian also talked about scalar feeds for prime focus reflectors.

This is an update on his 2017 MUD paper, including some new measurements he had done on prime focus feeds.

Dinner before each meeting **Sizzler:**

“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. Magnolia exit then two right turns. (I’m Sooo tired of that place. ed)

Apparently, most guys don't like beautiful waitresses and fine dining. Marie Calendar's is out. Dang.



Needs, Wants and For Sale

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

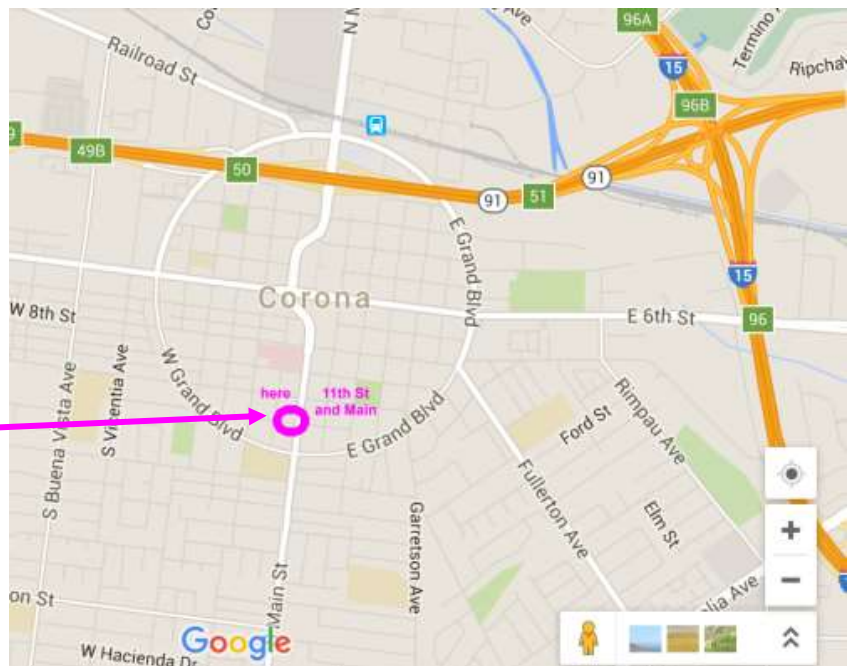
417 South Associated Road #146
Brea, CA 92821

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> (More details on that above.)

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 editor: Walter Clark: [walterClark at-symbol roadrunner.com](mailto:walterClark@symbol.roadrunner.com)

The newsletter is distributed by way of a reminder on the reflector to visit a particular URL within 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 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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