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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 August 4th Meeting . . .

Will be on the results of the tuneup and planning for the upcoming 10 GHz and Above contest.

Come and join SBMS at the Meeting 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 July SBMS Meeting

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

Presiding: Rein Smit W6SZ

(17 in attendance… 12 last month)

Guests Or Members Not Seen In a Long Time

First time guest: Carl Munn, oldest son of Ed Munn W6OYJ.
Later in the evening Scott KG6ABF, of Claremont came in.

ATN Check-ins

None.

Internet Check-ins

9 guests and 7 callsigns, including Brian AF6NA, and Dave WA6CGR who were monitoring from the meeting.

New Business

Rein W6SZ asked if it would be possible to have a hot spot here, maybe via a cellphone, so that information from the internet could be quickly displayed on the screen. Dave WA6CGR could do it with his cellphone right now. Using that, it should be possible to quickly switch another member's laptop to the projector should the need arise.

Dave W6DL announced that the following Tuesday night (7/12/16) was the annual Night of Nights XVII of KPH in San Francisco. KPH is the last of the coastal ship-to-shore stations and is now part of Point Reyes National Park. They transmit on 426 KHz and listen on 500 KHz for cross band contacts with amateurs in the amateur 600 meter band. Look up 'KPH' at NPS.gov.

Old Business

- Following up on use of the SBMS Laboratory at WA6CGR's QTH, Dave WA6CGR noted that substantial remodeling was underway. The club will schedule a Grand Re-Opening of the lab when it is ready.
- Pat N6RMJ asked about people's 10 GHz contest plans. He is concerned with the likely activity levels. Mel WA6JBD said that this was usually discussed in detail at the August meeting. Dave W6DL suggested that people who were having trouble getting their rigs going should ask for help.
- Brian AF6NA announced the Annual Tuneup would be held at Costa Mesa Park, Saturday morning 7/30/16 (always the last Saturday of July).

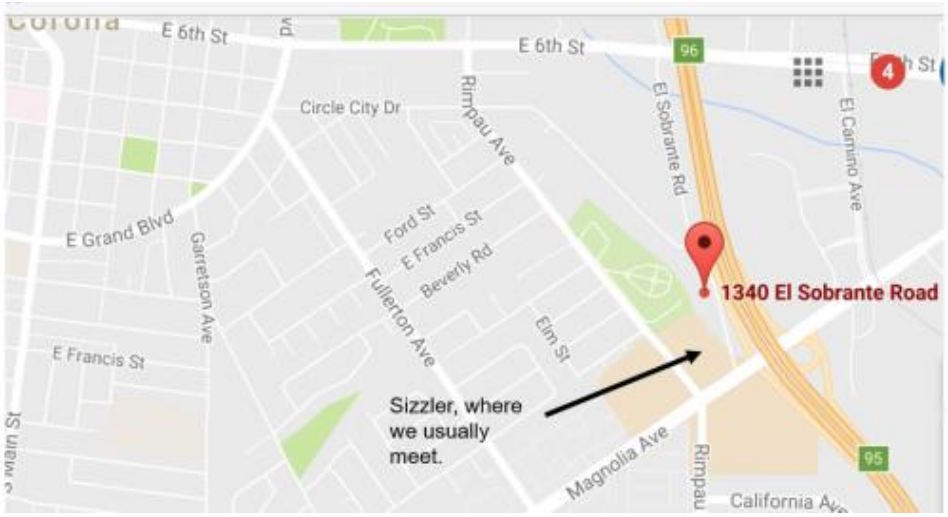
Dinner Before the August Meeting . . .

"Dinner-Before" is like a human capacitor in that it is a gathering place for people who are trying to beat the traffic and have a variety of distances to come from. Some arrive as early as 3:30.

For August it is Costañeda's about 100 yards down the hill from Sizzler's.

Google Map this:
1340 El Sobrante, Corona

(Sobrante is the street between Sizzler and the freeway.)



Upcoming Events

- August 4: SBMS Meeting
- August 6-7: UHF Contest (222 MHz and up)
- August 20-21: ARRL 10 GHz & Up Contest 1st Weekend
- September 1: SBMS Meeting
- Sept 10-12: ARRL VHF Contest
- Sept 17-18: ARRL 10 GHz & Up Contest 2nd Weekend
- Sept 24–25: ARRL EME Contest – 2 GHz and up
- Sept 24–25: ARI EME Contest – Autumn Section (144 MHz through 10 GHz)
- October 22–23: ARRL EME Contest – 50 MHz through1296 MHz part 1
- Nov 19–20: ARRL EME Contest 50 MHz through 1296 MHz part 2

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 Hesten 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)

Mel Swanberg WA6JBD (Upland)

was inspired by last month's network analyzer meeting. He had a discussion with Dr. David Kerpe who manufactures calibration kits for vector network analyzers. Mel already has one rated at 6 GHz and is interested in one for 10 GHz. He ended up ordering another calibration kit from him, a 13.5 GHz custom kit that covers the upper range of the analyzer and has separate calibration data for 10.368 and the other calling frequencies down to 432.1. These are all traceable to NIST measurements.

Rein Smit W6SZ (Alta Loma)

is trying to hear the beacon on the Juno spacecraft now orbiting Jupiter on 8.4 GHz.

Courtney Duncan N5BF (Eagle Rock)

passed around pictures of his Alfa Spid az/el rotator and 3 m. dish recently ordered from Holland. Will do non-field repairs to his 10 GHz rig before tuneup, will be at the tuneup, and is thinking about August contest weekend plans. Will be a full bore in some sense. Will try sun noise test if there's time. Did Field Day on hardly used frequencies on 223.5 and 1296.1 and made 52 points.

Pat Coker N6RMJ (Lake Los Angeles)

is working on a 5 GHz MESH node hoping to cover the 22 miles from Palmdale to Lake Los Angeles. Encourages everyone to get on for the 10 GHz and up contest next month.

Doug Millar K6JEY (Long Beach)

received a 1.2 dB noise figure preamp in the mail. With it he is nearing being on 79 GHz.

- He showed vector network analyzer (see picture) the size of a small Bud box with a manual that he can understand. It has a USB output.
- On 2304 MHz, Bill N6MN and Doug are still working on EME. They are putting together a talk on this project.

- KL6M's 30 foot dish blew out its elevation rotator, 30 feet in the air, so they are waiting on that.
- Will try JT mode.
- Picked up a fully functional IC-12-AT with the ICOM antenna for $20. The main problem was a shot battery. Plans to use as a signal source.
- Doug is equipped to measure power up to 120 GHz and has a signal generator up to 50 GHz. We are invited to use his lab for projects, repair facilities for contests, etc.

Bill McNally N6MN (Seal Beach)
K6PF's GS-15 23 cm amplifier came on the market and he picked it up. The unit is water cooled, and runs 300 watts. This is essentially the same amp that Doug K6JEY has for EME.

Dave Glawson WA6CGR (Wilmington)
is rebuilding the lab and disposing of 800 million things his wife doesn't want to see anymore. He is also working on a 2304 MHz moon bounce project with a 180 watt amplifier. Doug K6JEY suggested a terrestrial contact, he's at 80 W. Dave has worked Pat N6RMJ on the lab omni to his place in the desert during the 2 GHz and up contest. Had no trouble working Potosi.

Frank Kromann AG6QV (Trabuco Canyon)
brought a copy of his newly published PHP and MySQL book. Congratulations Frank. He made a 10 GHz contact with Brian over saddleback, a 34 km path, and had good signals working on 25 watts with a couple of uWave Hemp transistors for the LNA at 0.9 dB noise figure.

Jeff Fort KN6VR (Phelan)
thought he was going to do tower maintenance today but noticed that the top 2 meter antenna in stack was broken in half. Apparently there was an issue with the first batch of 18 element beams. The center of the boom has sleeve in it to prevent this.

Larry Johnston W6HLH (Lake Los Angeles)
is working on his antenna system

Mark Fischer W6MAF (Oak Hills)
does ATV on 2441 MHz. He has an amp that will work key down for half an hour. Hasn't been here in a while.

Don Hill KE6BXT (Mission Viejo)
has his amateur digital TV MESH net equipment working but is not hitting the repeater with his amplifier. Last month was Field Day his site was visited by the mayor of Lake Forest who was interested in getting RACES / ARES going again. MESH coverage, through the internet,

extends to New Jersey and overseas. Many non-US callsigns are appearing. Planning to visit the Jet Propulsion Laboratory Amateur Radio Club to install MESH equipment at their site and, later, give a program on it. This will cover the Pasadena area. Mount Wilson has a node pointing south that isn't seeing anyone yet. Try 2.4 GHz "Channel -2". This is all Part 97 and does not replace your home internet, but is meant for Emergency Operations Center (EOC) and experimental work.

Scott KG6ABF (Claremont)

talked to Gary W6KVC the night before the meeting and learned about this meeting. Interested in ATV and although he hasn't done much with it yet, had equipment given to him from K6HD that he plans to use when he figures it out. Is also interested in Astronomy.

Dave Laag W6DL (Marino Valley)

is working on getting a 1.2 m antenna on the tripod then he is going to make a Klystron based Gunplexer.

Walter Clark (Fullerton)

has made progress on his homopolar motor. The homopolar motor was an early invention of Michael Faraday's. It is a DC motor that has no commutator. It runs on only 8 mV but hundreds of amps, hence only a footnote in the history of electronics. This is so much current that he uses a bank of 2V ultra capacitors that have 0.1 milliohm of resistance at 15,000 Farads. He will give a Tech Talk later this year about the world of exceedingly low resistance motors and generators if the club is hard up for a speaker.

Dick Bremer WB6DNX (Brea)

put together a repeater for a RACES group.

Brian Thorson AF6NA (Corona)

made a 10 GHz contact from his home to Frank AG6QV. Passed around a block diagram of tuneup rig, thanking members for all their help. Asked who was planning to come to the tuneup and about 10 indicated they were.

Meeting Notes and pictures: Courtney Duncan N5BF

Pictures from the Tuneup

Here's Brian Thorson who was instrumental in pulling this event off. Also to thank is Dan Slater who loaned us the FieldFox that did the calibrating.

Pat Coker N6RMJ and Rein Smit W6SZ are here contemplating the futility of it all while Dan Bubke K6NKC, having suspended disbelief long ago, is coordinating the receiving end of the test range like it mattered. →

← Dick Bremer WB6DNX is pointing out a key feature of Brian's tower; a black box with golden things on either side. Very useful.

Below; Gordon West WB6NOA, Steve Miller W6QIW, Brian of course and Dick again still admiring the black box with gold things.

Doug Millar K6JEY (Long Beach) with his 24 GHz rig, with Pat Coker N6RMJ (Lake Los Angeles) and Jim Blum KK6MXP (Ontario).

Roughly translated to English; I think it was WTF.

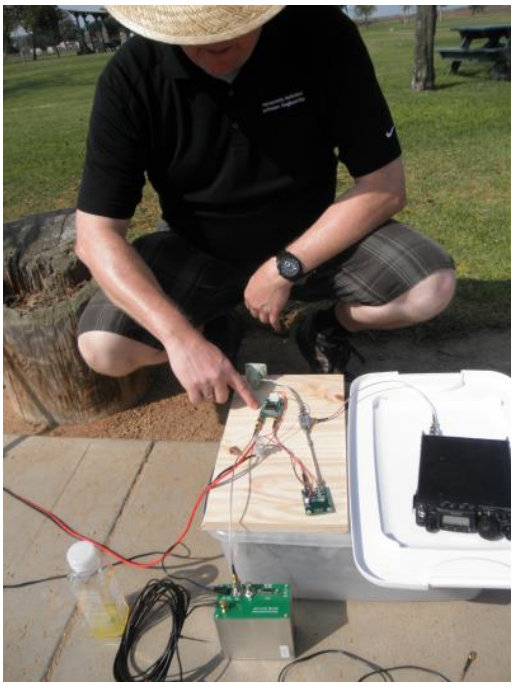
Here's Rein Smit, just before the wind blew over his rig. And here milliseconds after.

Gordo, WB6NOA and the oldest rig on the range.

https://www.youtube.com/watch?v=3FR72wHHCeM

Below, enjoying the view, John Duncan KG6HCO and Courtney Duncan N5BF.

Below is Frank and his bread boarded latest rig; missing only the front end LNA.



Frank brought his miniature 10 GHz for testing. This breadboard will go into a box behind the dish that is even smaller than the one that has won him some prizes.

10 GHz Result

SBMS EIRP-MDS MW Tune Up Sat. 30 JULY 2016 Sheet 1

10 GHz: Range = 220 Ft. System Losses = 18.0 dB WG Flange = 5 dBi
FSPL = 89.3 dB EIRP Amp Gain = 15.2 dB MDS Attenuator 30 dB

Callsign	Reflector Size (inches)	Ant. Effic. (%)	Calc. Ant. Gain (dBi)	EIRP Radio Output (dBm)	TEST Calc. EIRP (dBm)	EIRP Reading (dBm)	Meas. EIRP (dBm)	Meas. vs. Calc. (dB)	Conditions	MDS TEST Sig. Gen. Out (dBm)	MDS Atten. (dB)	MDS SCORE
(DATA)	(DATA)	(DATA)	RESULT	(DATA)	RESULT	(DATA)	RESULT	(Delta)		(DATA)	(DATA)	RESULT
N6RMJ	29.5	0.64	36	39.1	75	-14.6	73	-2.8	OFFSET	-58	30	-101
N5BF	29.5	0.64	36	39.0	75	-15.7	71	-3.8	OFFSET	-54	30	-97
AG6QV	18.0	0.55	31	23.5	55	-37.2	50	-4.9	PRIME	-45	30	-88
W6QIW	30.0	0.64	36	41.7	78	-9.9	77	-0.9	OFFSET	-60	30	-103
AF6NA	32.8	0.64	37	39.0	76	-9.5	78	1.5	OFFSET	-61	30	-104
WB6NOA	24.0	0.55	34	31.8	66	-44.5	43	-23.0	PRIME - EIRP ONLY			
N6RMJ2	29.5	0.64	36	39.1	75	-13.6	74	-1.8	OFFSET - RETEST EIRP ONLY			

FSPL = Free Space Path Loss
EIRP Readings taken /w/ power meter or Spectrum Analyzer in peak mode
Meas. EIRP = Reading + Sys Loss + FS Path Loss - Amp Gain - WG Flange Gain
Ant Gain Calc = 10 x LOG (((4 x Pi x (Pi x R Squared)) x Efficiency %) / LAMBDA Squared)
MDS Signals Generated @ 144 MHz with VHF / UHF Signal Generator
MDS Score = Sig. Gen. Output - Atten. - Sys. Loss + WG Gain
System Losses = Test Fixture Conversion / Insertion Loss + 300 ft. Cable Loss
F.S. Path Loss = 37.5+20*LOG(Dist in feet)+20*LOG(Freq MHz) - same as prior years = 89.3 dB @ 10.368 GHz
300 ft. Cable Loss = 7.5 dB @ 144 MHz
Open WR-90 Gain assumed to be 5 dB

24 GHz Results

SBMS EIRP-MDS MW Tune Up Sat. 30 JULY 2016 Sheet 1

24 GHz Range = 220 Ft. System Losses = 21.5 dB WG Flange = 5 dBi
FSPL = 95.0 dB EIRP Amp Gain = 15.4 dB MDS Attenuator 10 dB

Callsign	Reflector Size (inches)	Ant. Effic. (%)	Calc. Ant. Gain (dBi)	EIRP Radio Output (dBm)	TEST Calc. EIRP (dBm)	EIRP Reading (dBm)	Meas. EIRP (dBm)	Meas. vs. Calc. (dB)	Conditions	MDS TEST Sig. Gen. Out (dBm)	MDS Atten. (dB)	MDS SCORE
(DATA)	(DATA)	(DATA)		(DATA)		(DATA)	(RESULT)	(Delta)		(DATA)	(DATA)	(RESULT)
W6QIW	24.0	0.55	41	30.0	71	-27.7	68	-2.8	PRIME FOCUS	-73	10	-99
K6JEY	12.0	0.55	35	27.0	62	-80.0	16	-46.1	PRIME FOCUS 1.8 dB NF - NO TX	-73	10	-99
K6JEY	12.0	0.55	35	27.0	62	-80.0	16	-46.1	PRIME FOCUS - NO TX	-62	10	-88

FSPL = Free Space Path Loss
EIRP Readings taken /w/ power meter or Spectrum Analyzer in peak mode
Meas. EIRP = Reading + Sys Loss + FS Path Loss - Amp Gain - WG Flange Gain
Ant Gain Calc = 10 x LOG (((4 x Pi x (Pi x R Squared)) x Efficiency %) / LAMBDA Squared)
MDS Signals Generated @ 432 MHz with VHF / UHF Signal Generator
MDS Score = Sig. Gen. Output - Atten. - Sys. Loss + WG Gain
System Losses = Test Fixture Conversion / Insertion Loss + 300 ft. Cable Loss
F.S. Path Loss = 37.5+20*LOG(Dist in feet)+20*LOG(Freq MHz) - same as prior years = 95.0 dB @ 24.192 GHz
300 ft. Cable Loss = 13.0 dB @ 432 MHz
Open WG Flange Gain assumed to be 5 dB

The So Called “Party” After the Tuneup

(It was actually a 3 hour strategizing for the 10GHz and Up)

On the right above is Rein Smit, John Oppen, Dan from San Diego and Bill Locke.

On the left here is Tiramisu the cat, Courtney and John Duncan.
John is a geologist. His wife is in her first year of internship at Glendale Adventist Medical Center. They've just moved here from Texas. John is planning to come with Courtney to the meeting this week. Ham radio wise, he helps Courtney - putting a tower up or being co-pilot.

Microwave Mystery Gizmo of the Month

hint: there's some camoflage to make it harder for you to identify.

If you can identify why, or would like to discuss this, use the SBMS Reflector by sending an e-mail letter to . . .
SBMS at-symbol lists.altadena.net

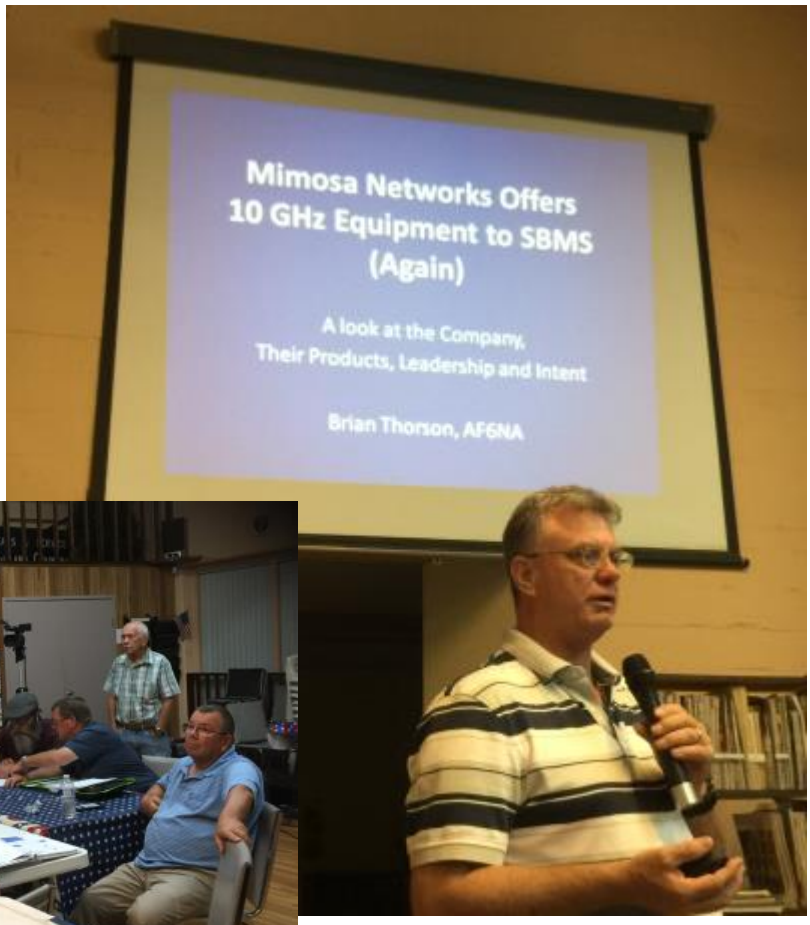
If you don't have an account sign up at this website:
sbms at-symbol ham-radio.com

Last Month's Tech Talk

Mimosa Networks Offers 10 GHz Equipment to SBMS (Again)

A look at the company… their Products, leadership and intent

given by Brian Thorson, AF6NA.



Needs, Wants and For Sale (Updated 1 May 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 at-symbol mediacombb.net
His address is: 247 Rebel Road Ridgecrest CA 93555

- Andrews Microwave dish 8 ft solid aluminum ***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 $5
- Radio Shack PRO 651 handheld digital trunking Police scanner and manual (paid $400) and USB cable (paid $35) all for **$150**. Still new. Receives local weather channel just fine. Will receive all 3 modes of trunk radio signals as well as normal analog stations. AA battery holder and rechargeable battery holder. Receives 25-174 MHz, 216-512 MHz, 764-960 MHz (cell blocked), 1240-1300 MHz.

Member Ads

Sixty North Electronics (as if May 2)

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 will no longer be able to offer to build Down East Microwave kits due to DEMI management entering into an agreement with a subcontractor to build all their transverters which precludes selling to any other reseller.

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, directly.
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

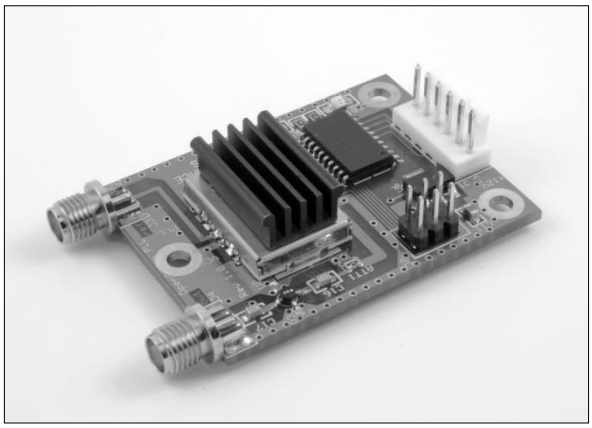
Contact Ed for a quote.
All of Ed's work is covered with a 90-day warrantee on workmanship.
Ed Cole <kl7uw at-symbol acsalaska.net>

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

REACTANCE LABS

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).***

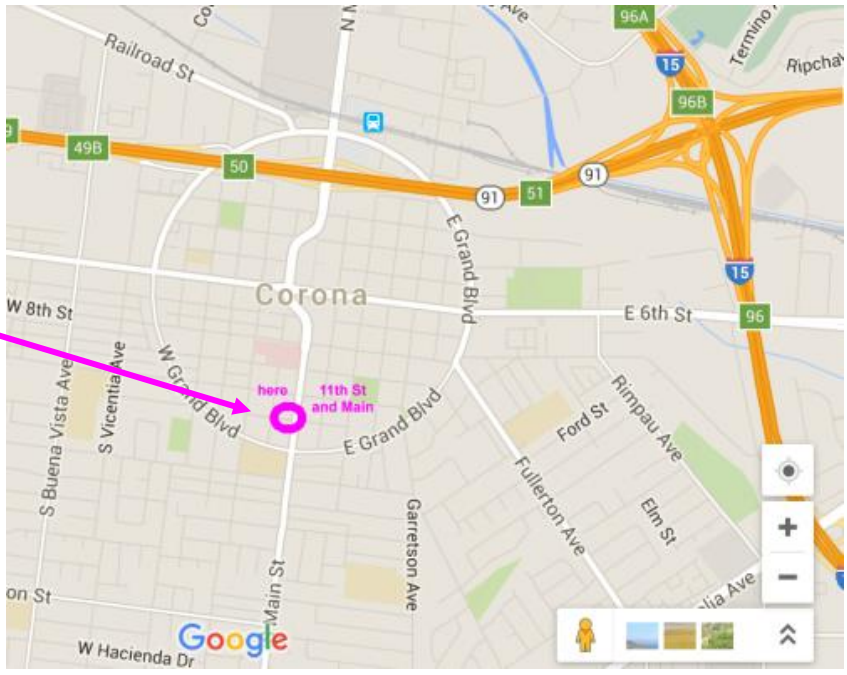
Official Address

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: American Legion Hall, Corona, CA



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

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
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 at-symbol roadrunner.com

Contact San Bernardino Microwave Society (SBMS)

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