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 July Meeting Marie Calendar's (see below)

Tech Talk for the September 7th Meeting . . .

Some traveled out-of-state to view the Solar Eclipse, others stayed in California for the 10 GHz and Up contest. Some of our membership purchased radios to get on microwave bands they never explored before. We will hear from several members on Thursday, September 7th about their activities. Come and be a part of the meeting in person or follow us online.

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)

More Picture of Annual Fairview Park Tuneup

Gordo, Bill Locke, Jason, Brian and Dick Bremer

Gordon West WB6NOA (Costa Mesa)

Stuart H Landau K6YAZ (West Hills)

The After-TuneUp Bar B Que
at Dave Glawson's Lab in Wilmington

That's Jason our fearless leader, then Jerry Martes, Rein Smit, Jim Blum, our host Dave Glawson, Stuart H Landau and Pat Coker. Presumably Brian Thorson took the picture.

- "Lazarus" was repaired again.
- Transverters and W1GHZ kits will be worked at future meetings.

Documentation of the 2017 Tune Up Results

SBMS EIRP-MDS MW Tune Up Sat. 22 JULY 2017

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
K6YAC	12.0	0.55	28	27.0	55	-49.5	38	-17.2	PRIME	-29	30	-72
KK6MXP	24.0	0.55	34	36.6	70	-17.6	70	-0.9	PRIME	-53	30	-96
WB6NOA	23.0	0.55	33	31.8	65	-34.6	53	-12.7	PRIME	-44	30	-87
AF6NA	32.8	0.64	37	43.6	81	-6.8	80	-0.4	OFFSET	-57	30	-100
W6IEE	26.6	0.55	35	24.0	59	-33.4	54	-5.0	PRIME	-38	30	-81

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

10 Gig

SBMS EIRP-MDS MW Tune Up Sat. 22 JULY 2016

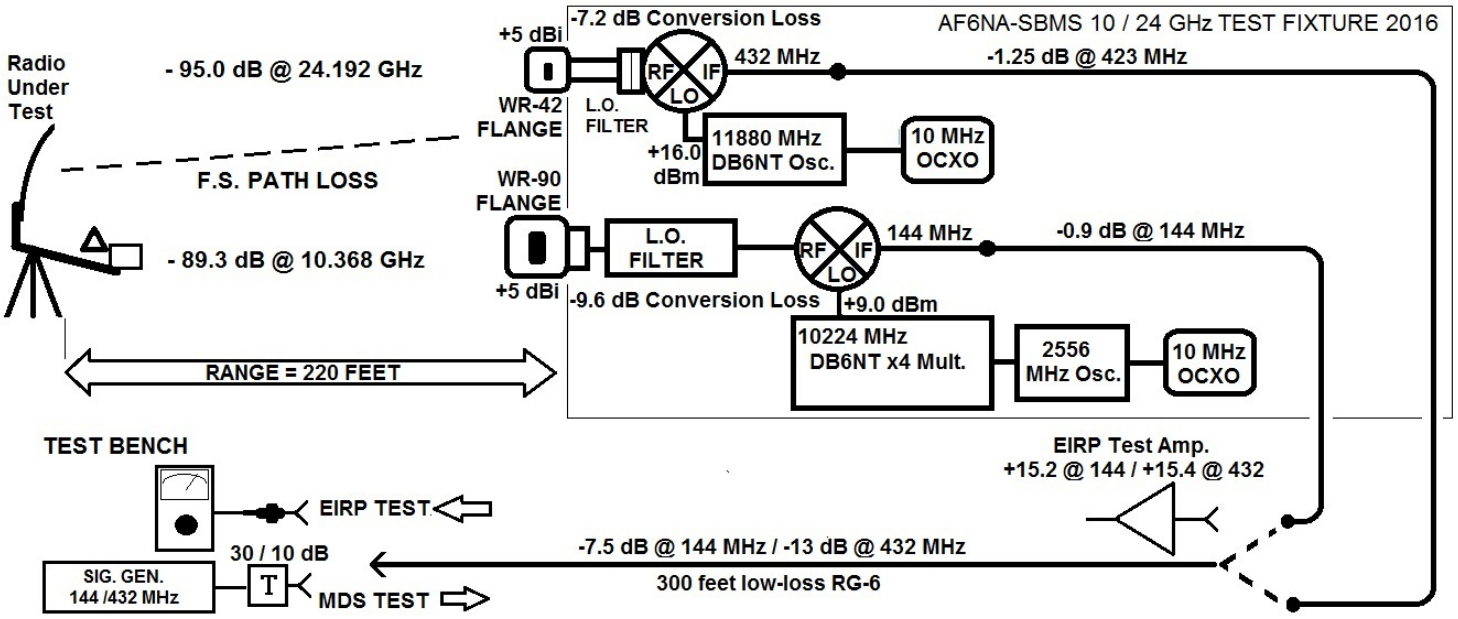
24 GHz Range = 220 Ft. System Losses = 21.5 dB WG Flange = 5 dBi
FSPL = 95.0 dB EIRP Amp Gain = 15.4 dB MDS Attenuator 10 dB

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)	RESULT	(DATA)	RESULT	(DATA)	(RESULT)	(Delta)		(DATA)	(DATA)	(RESULT)
K6JEY	12.0	0.55	35	24.0	59	-51.0	45	-14.1	PRIME FOCUS	-51	10	-77
WB6DNX	3.6	0.55	25	30.0	55	-52.5	44	-11.2	HORN 4-INCH	0	10	-26
K6JEY	12.0	0.55	35	24.0	59	-41.2	55	-4.3	PRIME FOCUS - RETEST	-61	10	-87

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

24 Gig

The Tune Up System Architecture



For those who were not there, the results of interest to each participant were obtained during the test. The above fine print is to permanently document the results.

Activities of the August SBMS Meeting

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

Presiding: Jason Sogolow WB6IEE (Norco)

Visitor and those not seen in while:

- **Brian Comer KF6C, San Marcos**

Old Business

- Dave Glawson WA6CGR reported on the South Bay Microwave Society meeting and build session that was held after the tuneup on Saturday afternoon July 22, 2017 at the SBMS lab (WA6CGR's QTH). It was a very successful meeting. "Lazarus" was repaired again. Transverters and W1GHZ kits will be worked at future meetings.
- Brian Thorson AF6NA reported on the annual tuneup at Costa Mesa park Saturday morning July 22, 2017. Participants included five on 10 GHz and four on 24 GHz. He will send out the results first thing tomorrow morning.
- Mel Swanberg WA6JBD update on Chuck Swedblom' W6EXV's trailer removal project. Friday after last month's meeting a group went up and removed the EME dish and azimuth / elevation rotator from its pedestal. A couple of weeks later Dennis Kidder W6DQ removed the pedestal. All is now moved to W6DQ's property. The trailer is gone, the tower is down, everything is done.
- Dave Laag W6DL reported progress on SBMS badge production. He is still waiting for list of badges to make.

New Business

- none

What Our Members Are Working On

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

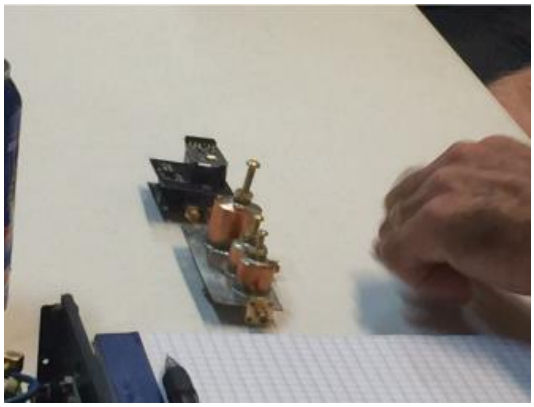
Jason Sogolow WB6IEE (Norco)
had fun at WA6CGR's lab and is excited about the stuff there. (See picture above). He is buying a house on a third of an acre in Norco with mountains to the east but no trees in the moon path and a west view. Plans a deck and garage.

Dave Laag W6DL (Marino Valley)
Starting to dig out the 10 GHz equipment in preparation for the contest. Will be operating from Temecula.

Roland Hoffman KC6JPG (Rancho Cucamonga)
is currently heavily active with amateur photography but is assembling a 2.4 GHz receiver and is working on a 5.9 GHz receive dish (courtesy of Mike WA6SBC) for ATV links.

Mel Swanberg WA6JBD (Upland)
has been mostly involved in activities at Chuck Swedblom WA6EXV's place that has been closed out. (Reported in Old Business.) Over the weekend, Sunday, and last night had activity nights for Lazarus, and others. Most of the projects on his bench are work related, < 1 GHz.

Larry Johnston K6HLH (Lake Los Angeles)
has 10 GHz working on his tower, nearly. But can't turn azimuth past about 130 degrees going north because the cables bind up. Showed his AD4351 LO board for 10.224 GHz. (See picture) Has pipe cap filters which he worked long and hard to understand. It is a really nice unit with an MLB-310 amplifier that puts out +10 dBm out with 9.5 dB gain but with a high noise figure of 4 dB. DigiKey and Mouser no longer carry these so Larry bought 25 direct from RFMID for $90 with $16 shipping to get the price break and will ill sell them for $10 each.



Greg Jenkins RF6EEK
is sitting here to see what we talk about in this club.

Tom Boland WN3ISG
is also visiting for the same reason.

Pat Coker N6RMJ (Lake Los Angeles)
took Lazarus off the tower as it had stopped working due to noise problems that were hard to find. Found wires melted in half and replaced them. Opened the DB6NT converter and cleaned out the charcoal remains of a protection diode. Now it works again. Reconfigured to stop using his 17 to 13.8 V regulator. Now sends 14.8 V up 125 feet on the tower on #10 wire and just uses what gets there. Brought the rig to the SBMS lab and it checked out all OK. The noise is gone and he has been able to make contacts.

Bill Locke N6WL (Baker)
went to the tuneup and SBMS lab visit and had a great time at both. If you missed it you missed a great time. He Is working on a 10 GHz radio slowly but surely. Talking now about getting the GPS antenna and oscillator subsystems going.

Courtney Duncan N5BF (La Canada)
worked 6 new callsigns on 23 cm EME on the good July weekend and TI2AEB Costa Rica last night on JT65C. The next good EME weekend is 8/19-8/20 right before the total solar eclipse on 8/21 (and the same as the first weekend of the 10 GHz and up event). KN0WS plans to operate 23 cm EME portable from Nebraska on 8/20. Also, the ARRL is sponsoring a big ionosphere sounding event during the eclipse. See July 2017 QST.

Comer KF6C (San Marcos)
went to the San Diego tuneup and to check out his previously used 10 GHz rig that hadn't been used in a few years. Now working on a commercial (DB6NT) one for the his RV that features a four foot dish that is too heavy.

Brian Thorson AF6NA (Corona)
will share during the presentation session later in this meeting. Has had lots of microwave activity.

Robert Carter KA6MQQ Riverside
since last meeting has put together a 24 GHz link out of two radar detectors. Also put up a 2 GHz link. Has operational equipment, now can get involved. Is still working with laser and light equipment.

Jim Blum KK6MXP (Ontario)
made some mechanical modifications to his rig. It is no longer strapped by Velcro and elastic, it is now bracketed. Fixed a six foot external cable that was wound up in a ball, leaking RF in. Also was on the Sunday Lazarus party and also worked Pat N6RMJ at 10 p.m. last night. That makes four months in a row for attending activity night (the Wednesday evening before this meeting on the first Thursday of each month - Ed.). Keeps getting clean sweeps every month.

Dave Glawson WA6CGR (Wilmington)
had fun last weekend hosting the microwave construction get-together at the Wilmington Lab. Eleven people showed up. Now that the lab is cleaned up, he plans a presentation area next to the lab with slide projector. We need additional activity on the microwave bands: 2.3 GHz for example and 5.8 GHz would be even better. That is the point of these get-togethers and Dave has lots of parts available.

Rein Smit W6SZ (Alta Loma)
was present as an observer at the tune up. Worked with Walter yesterday morning and this morning at 7 a.m. to provide signals for a reception test at Panorama Heights Park. Walter got a huge signal from Rein's carrier transmission and sent back a picture. Larry had noticed some 120 cycle modulation on it so now he's not sure what that was. Will investigate further.

Gary Heston W6KVC (Blue Jay)
is on the Quartzite committee and would like to get a bunch of us out there for tech talks during the Quartzite week in January when free camping is available. Gary, Gordo WB6NOA, and others usually do nice microwave demos.

Dick Bremer WB6DNX (Brea)
went to the tuneup and took his 24 GHz rig. It had a problem; it looked like the verti-com LO was not locking up. Couldn't hear anything on the receive side but did get a measurement on transmit. Had a similar rig on the bench from which he had built a beacon and there was a copy of the verti-com assembly in it. Although it was not quite identical, he swapped it in on the bench and it worked fine, so that confirms what the problem is. This evening brought a bunch of stuff from PowerWerx, open box stuff that was junked at a swap meet and is available here for half price. Some handi-talkie microphones for $5 and things like that.

Jason Sogolow concluded that it was good to hear no "no microwave activity" reports this month!

ATN Check ins

Roland WB6JPG checked the chatroom: AF7M Gary, K6NKC, KC0ITF, KF6PGT, KG6IYN, N8KH, N9RIN, N0TG, W6QIW, WT7AA. WA6SVT Mike. 13 callsign and 5 guests. Pat asked where W6QIW will be in the contest. Via chatroom Steve answered: Roving.

Events of Interest to the Microwave Ham Community

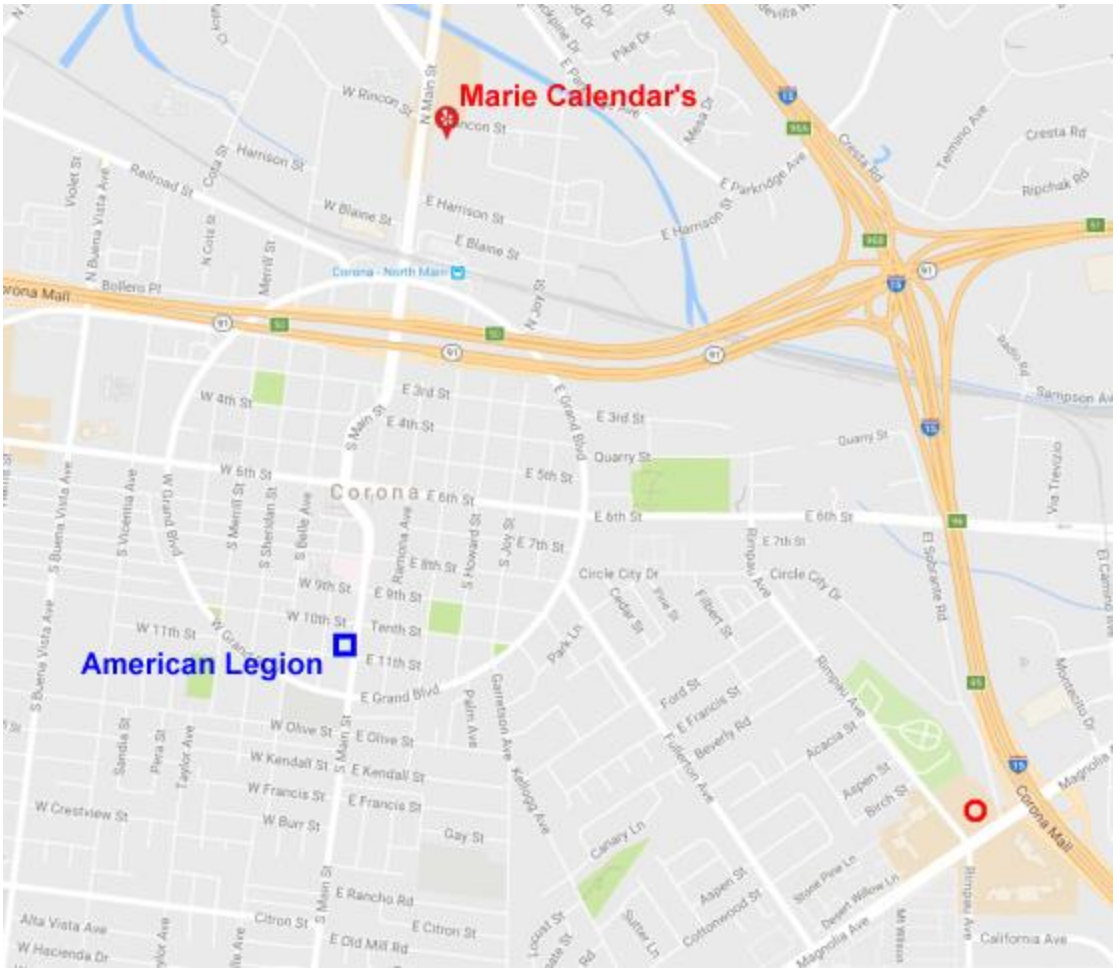
September 9 – 10	ARRL EME Contest, 2.3 GHz & Up
Sept 16, 17	ARRL 10 GHz & Up – Weekend #2
October 5	SBMS Meeting
October 7 – 8	ARRL EME Contest, 50 – 1296 MHz, 1st weekend
October 27 – 29	Microwave Update 2017, Santa Clara, CA
November 4 – 5	ARRL EME Contest, 50 – 1296 MHz, 2nd weekend

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 upcoming meeting Marie Calendar's:

"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.

Marie Calendar's is on the north side of the 91 and as you can see on the map, both easy to get to from the freeway and easy to get to our meeting place from there; north on Main, over the train tracks and right on Rincon about 80 feet.



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 Pk 10368.330MHz KE6JUV/B 2W Out of Service
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; (don't forget)

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.

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

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 stand alone mode so it doesn't bother anyone.

Mel - WA6JB

"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

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

What is the spike called?

And how does it work?

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).

The August Meeting Tech Talk was given by Brian Thorson AF6NA

He had an illustrated description of the most popular So. Cal. microwave operating sites. This was the framework around an evening of un-structured networking, giving members an opportunity to plan their contest activities and exchange information with others in attendance.

His suggested a focus for this year's contest to emphasize bringing someone new to the contest. He encouraged SBMS members to invite someone, licensed Ham or not, to come along in your contest work.

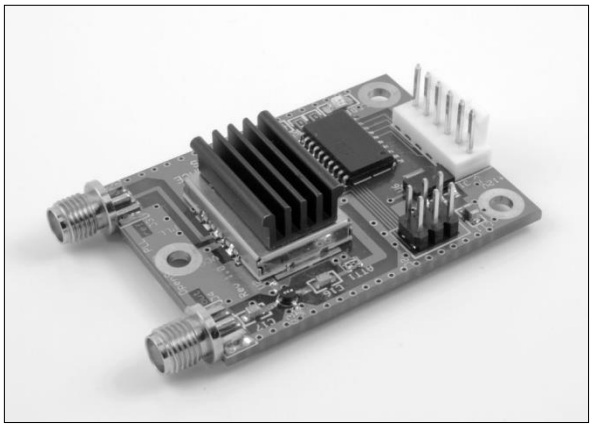
Needs, Wants and For Sale **(updated 1 June 2017)**

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

- Three IC-22S two meter FM rigs ***free***
- 1 meter offset feed dish and 10 GHz feed $20.
- Steel TV push-up masts ***free***
- 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***
- Power pole 14.5 ft tall by 1 ft diameter ***free***
- Many round meters, ma, volt, frequency, misc. ***free***

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).***

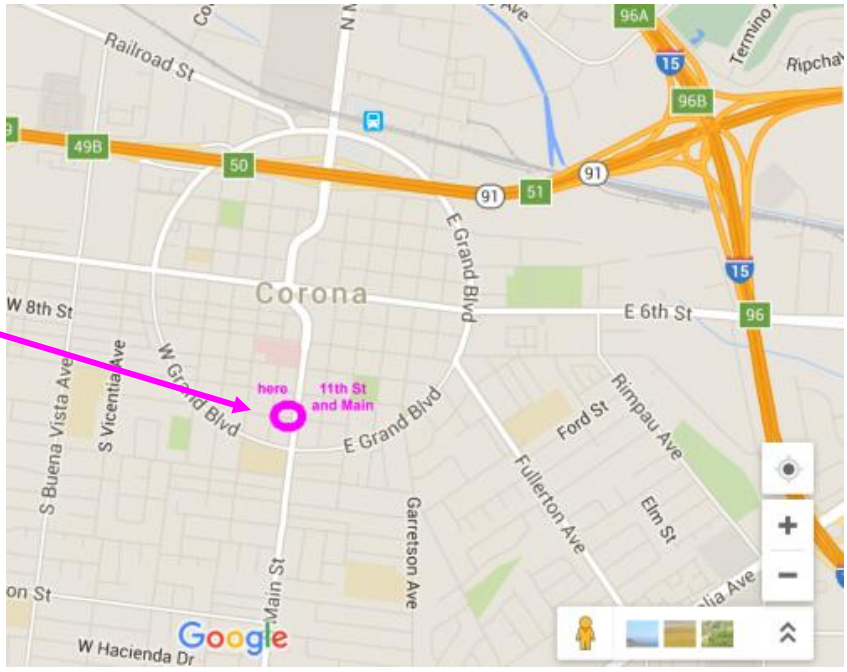
Official Address

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: 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
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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