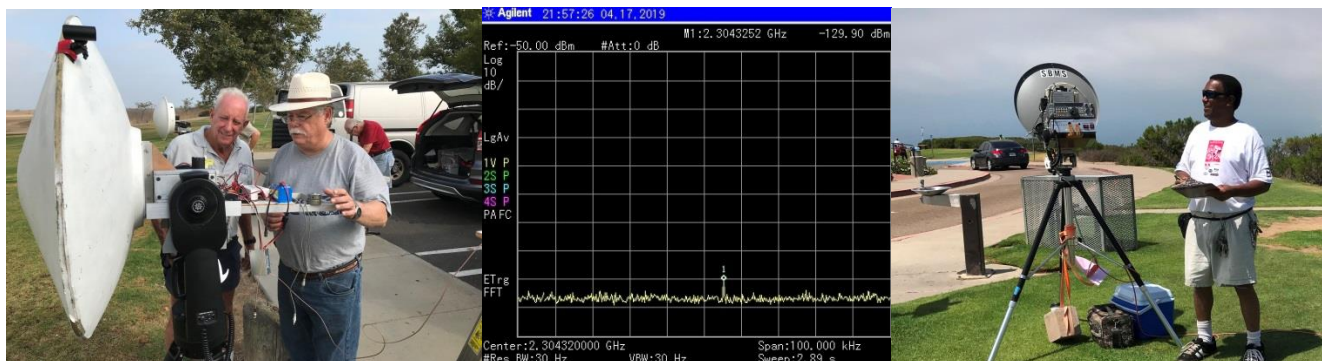


THE SAN BERNARDINO MICROWAVE SOCIETY (SBMS)

“Communicating at 1 GHz and Above – Since 1955”

June 2019 Updates, Activity and News

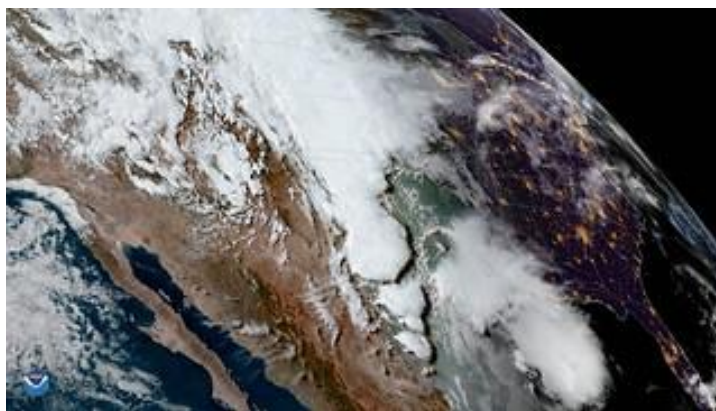


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May 2019 Technical Presentation

Ed Murashie, WX6DX, gave an excellent presentation on receiving the Geostationary Operational Environmental Satellites (GOES). He also demonstrated live images from the weather satellite using a Ku band downlink. The amount of data and images available is



is massive from these satellites. GOES 17 is the satellite that covers the US west coast. Images and more info can be accessed at the following link.

<https://www.goes-r.gov/multimedia/dataAndImageryImagesGoes-17.html>

There was considerable interest after the meeting about the lightning mapper feature of the GOES satcom data. Ed provided some good links for those interested. See following links. Thanks again to Ed for an informative talk and demo!

<https://www.goes-r.gov/spacesegment/glm.html>

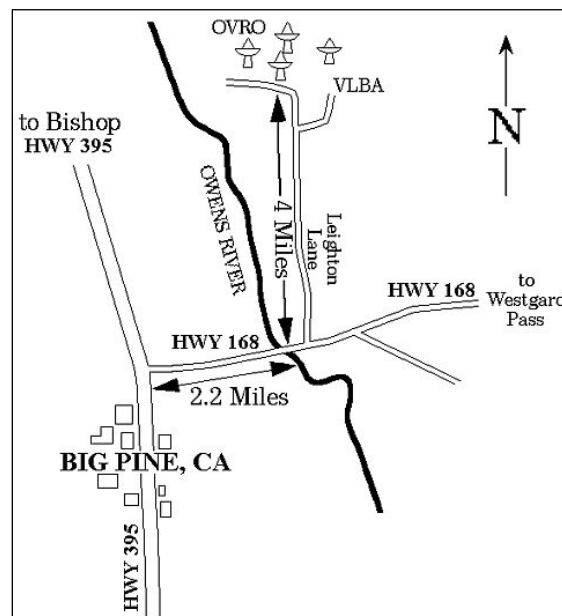
<https://www.star.nesdis.noaa.gov/goesr/docs/ATBD/LCFA.pdf>

Owens Valley Radio Observatory (OVRO) Trip – “SCIENCE BEYOND THE BOOK”

Saturday, June 15th 2019 – With Dr. Doug Millar (K6JEY) and Cecilia Caballero



Please join us on Saturday, June 15th for an extraordinary science education event at Owens Valley Radio Observatory near Big Pine, CA. Included are science activities at the 40-meter dish antenna and a tour, walking a scale model of the distances of the planets, and night time astronomy. All the above is free and courtesy of Dr. Mark Hodges, OVRO and Cal Tech. The trip is open to teachers and their families, members of local astronomy clubs, and radio Amateurs. You must RSVP to Dr. Doug Millar so we know how many to plan for, and include your cell number. This is not a school or OCA sponsored field trip, so each participant will need to plan their own transportation. Plan to arrive at the Observatory about 2:00 pm on Saturday. There are several motels in Big Pine and in Bishop. Please make your own reservations. You can also camp out at the 40-meter dish or in Big Pine (tents or campers). RSVP to: Dr. Doug Millar (K6JEY) – Cell 562-810-3989 – drzarkof56@yahoo.com

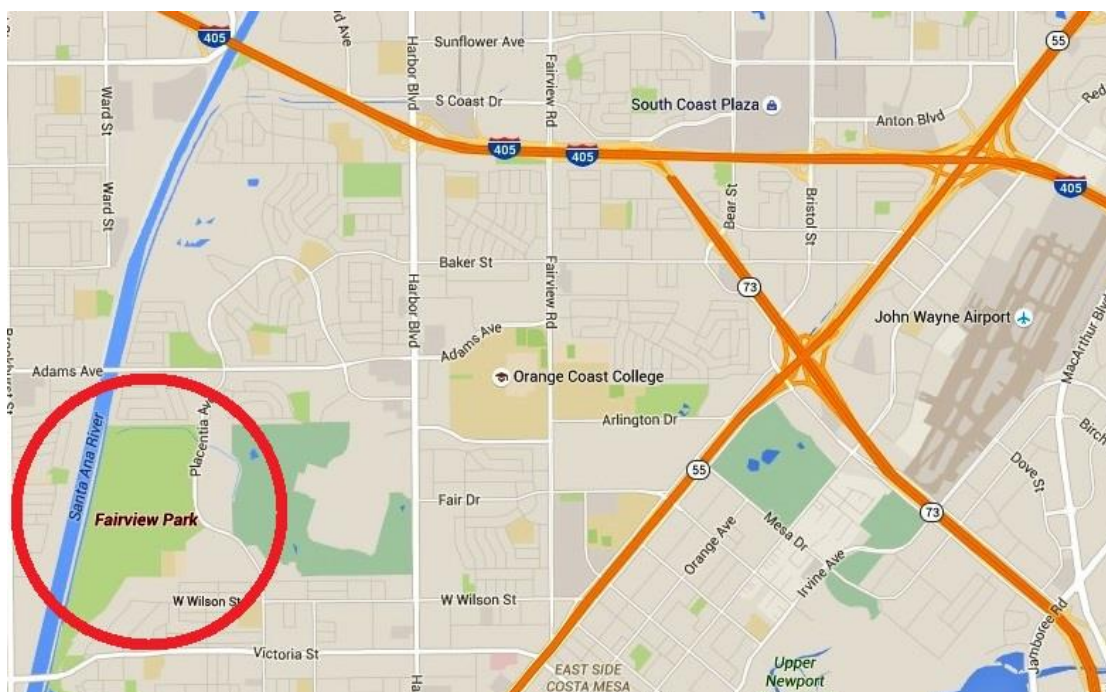


The 2019 SBMS Microwave Tune-Up

Just under 8 weeks, now, until the SBMS annual Microwave Tune Up where SBMS members and friends bring their 10 and 24 GHz radios for EIRP and MDS testing. This year, we are set to meet on July 27th, the last Saturday of the month at Fairview Park in Costa Mesa.



This is a great way to get started in Amateur Microwave or to connect with and learn from experienced microwave radio operators. We will be equipped to test 10.368 GHz and 24.192 GHz radios this year. Fairview Park is a no-barbecue park, but sandwiches and snacks are fine as long as we manage the trash responsibly. Get your systems out and ready for the last Saturday in July. Testing commences at 9:00 AM. A Freeway map and Fairview Park location is shown below.



Fairview Park – 2525 Placentia Ave, Costa Mesa, CA 92628

May 2019 Attendee Microwave Activity Reports

Jason W6IEE – Has acquired one of the 2.3 GHz RDL SDRs and also some Chinese LNBs

Robert KM6RXN – Tried to get on home-to-home last night but his receiver was messed up. By the time he had a replacement TCXO out of his junk box installed and netted onto 10.368.001 on his counter, everyone else was QRT. Mel WA6JBD offered to measure the TCXO on his equipment to see how clean it is.

Courtney N5BF – Got 10 GHz working again with a new OCXO. It has start up current of 1.05 A at 13.8 V and settles down to 0.46 A after a minute. All appears to be working fine. Had a conflict last night for home-to-home but plans to be on for some of the contest Saturday

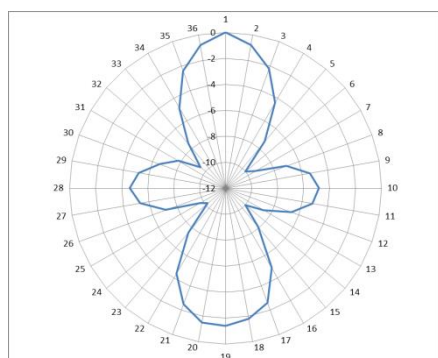
Larry K6HLH – Finished his 2/3/5 GHz transverter box as pictured. It features 10 MHz input for all the oscillators and a 144 MHz IF. Switching is performed by grounding input lines. He now needs a 2-6 GHz 10 watt amplifier to complete the station (but will settle for 1 W). This broadband approach would save a lot switching during band changes. His dish antenna (also pictured) is fed with log periodic 2-11 GHz so that antenna switching is not necessary.



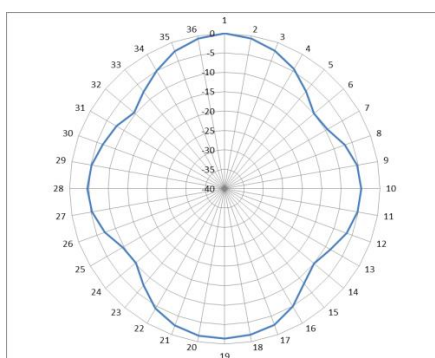
Rein W6SZ – Was going to listen to the Israeli moon lander which was in route to the moon for 4 months, with a downlink on 2.4 GHz but he has a lot of noise to the south in that band. Listening from inside the garage, however, he could hear the beacon 25-30 dB out of the noise. He has been listening a lot to OSCAR 100 via WebSDR. OSCAR 100 is stationary over the Indian Ocean and cannot be seen from North America. The downlink is on 10 GHz and there is a lot of activity. The uplink is on 2.4 GHz and it is interesting the uplink power levels on 2.4 GHz that people are successfully using. Sometimes there are 10 stations on sideband, some of them running only 100 mW while still having good downlink quality.

Mel WA6JBD – Had a couple of weekends in the last couple of months when he could turn off the phone and pull the shades and work on the new 10 GHz rig, which is about a month from completion. He is happy with how it is working so far. Made three contacts last night in home-to-home. The new 2.4 GHz beacon is on the air on Heaps Peak – Barry Flint W7BF bought an antenna. The old antenna rattled and didn't look like an antenna on a network analyzer so the antenna from Mel's house was relocated to Heaps. Cut open the old one and found it was a slot design of three PC boards in a two-inch PVC pipe. The "wings" were broken off and are thought to be repairable. Mel is now working on a project to duplicate this design as the original vendor in Canada doesn't make them anymore.

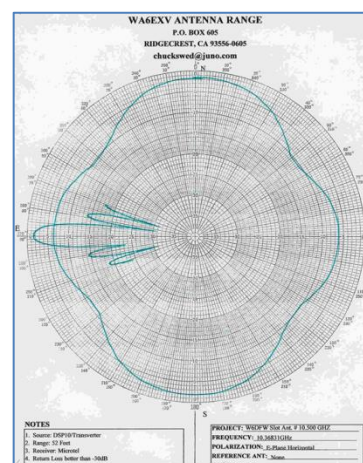
Brian AF6NA – When he first started at SBMS somebody gave him a W6DFW slot Omni antenna for 10 GHz. He has now measured a 360 degree antenna pattern on it. With maximum radiation at 0 the nulls are 10 dB down and the sides are 4 dB down. See following patterns.



AF6NA 2-meter Range (Original)



AF6NA Re-Scaled Pattern



WA6EXV Range Pattern

After the meeting, Mel – WA6JBD sent over to AF6NA a pattern taken by Chuck – WA6EXV. It is included for comparison.

Bill N6WL– Is working on a 2.3 GHz radio but cannot hear the (Heaps) beacon yet. Activity this month was UHF/VHF only.

Jon KJ6HZ – Has been working on getting some LPRO Rubidium oscillators going with a lock circuit and is also fooling with Chinese noise sources. Will probably not be on for the contest this weekend, but if he is it will be a little on Sunday afternoon.

Roland KC6JPG – Put up a couple of dual polarization mesh nodes on 2.4 and 5.8 GHz.

Gary W6KVC: Will be in Dayton two weeks from tonight, as he goes every 2-3 years. While there he will try to put some of the tech talks on KC6JPG's network. As Dayton is three hours ahead, we will have to get up early.

Dave W6DL: Nothing of interest to report this month.

Paul AE6TR – Has started working on a GPS locked oscillator to see if he can get it to work.

George KM6UKI – No report this month.

Jim KK6MXP – 10 GHz receiver is still dead. Mel WA6JBD wants him to come over and get it working which he will do soon. Plans to be operational again with new frequency references by August.

Dick WB6DNX – Has been looking for two big receivers in his garage. Although he found both, neither work, so that is the next project.

Check-Ins from ATN: Bob W6KGE, "everything is working here." Dave KA6DPS is watching on 2 GHz. Gordo, WB6NOA, hopes to hear everyone on 10 GHz Saturday afternoon and notes that in Orange County there will be several RACES drills Saturday and the Marathon on Sunday. Chris N9RIN was checked in online

The SBMS 2 GHz and Up Challenge Participation Report



N5BF Mobile 10 GHz Station



KM6RXN Operating From DM13bx

Several Southern Cal. SBMS members enjoyed making contacts on the X-Band the weekend of May 4th and 5th; Larry – K6HLH, Marty – N6VI, Dave – N6TEB, Steve – W6QIW, Rein W6SZ, Courtney – N5BF, Robert – KM6RXN, Brian – AF6NA, and there may have been others. Logs went in to Bill Burns on Saturday, June 1st.

Upcoming June 2019 SBMS Meeting Technical Presentation

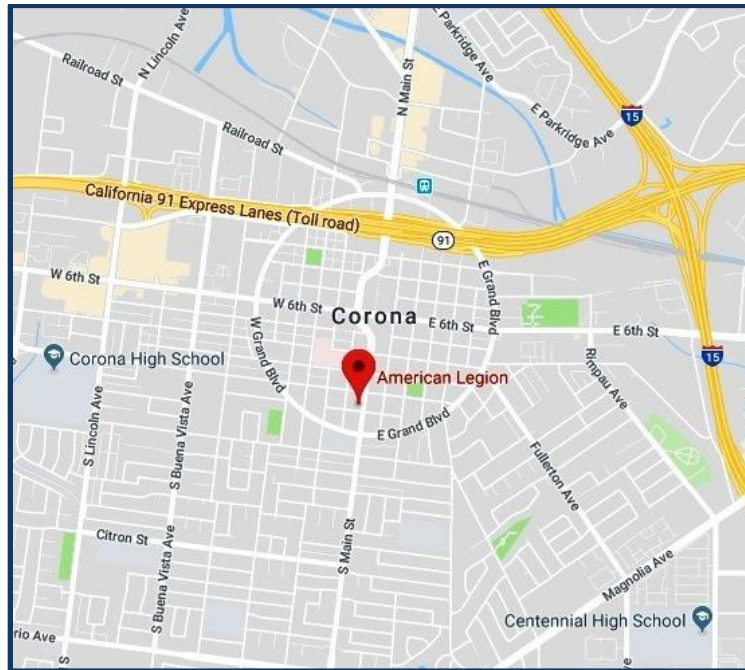
“Seeing the Light and Finding Your Focus”

Parabolic reflectors have been documented by some of the most brilliant mathematicians and scientists since about 300 B.C. Focusing light waves was one of the earliest applications.



At the June 6th SBMS meeting, Brian, AF6NA will present a method for finding the exact focal point of any parabolic reflector, using proven science, that requires no advanced math, algebra or geometry. This method is more accurate than calculations because no numeric assumptions need to be made. The difference between an RCA offset versus a “true” offset reflector is also covered.

SBMS Monthly Meetings: First Thursday of the month – 7:00 PM
American Legion Hall
1024 South Main St.
Corona, CA 92882



Contact SBMS:

Feel free to get in touch with SBMS with questions about Amateur microwave systems, operation, design, club activities or meetings.

San Bernardino Microwave Society
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Brea, CA 92821

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Dick Bremer	WB6DNX	rabremer-at-sbcglobal.net	
Brian Thorson	AF6NA	brianaf6na-at-gmail.com	951-768-0960
Dave Laag	W6DL	dlaag-at-clubnet.net	
Dave Glawson	WA6CGR	wa6cgr-at-ham-radio.com	
Rein Smit:	W6SZ	rein0zn-at-ix.netcom.com	

The SBMS E-Mail Reflector

For hardware requests, technical help, microwave theory questions, reach all SBMS members on the email reflector list at the following address:

sbms -at- ham-radio.com

Amateur Microwave Beacons in Southern California:

Radio Beacons are dependable signals always on the air that builders and makers can tune in to and receive. They give the users an indication that their receiver is working, whether it is on frequency, and a rough idea of receiver sensitivity. The following beacons may be useful in microwave system development and testing.

Los Angeles:

Name	Freq. MHz	Call	Altitude	Output	Grid Square	W Long.	N Lat.
Heaps Peak	2304.325	W6IFE/B	6435 ft.	27 dBm (0.5W)	DM14kf	- 117.797	34.152
Santiago Peak	10368.330	AF6HP	5681 ft	33 dBm (2W)	DM13fr	- 117.534	33.711

San Diego:

Name	Freq. MHz	Call	Altitude	Output	Grid Square	W Long.	N Lat.
San Miguel	1296.300	K6QPV/B	2500 ft.	40.8 dBm	DM12mq	- 116.935	32.569
San Miguel	3456.300	K6QPV/B	"	40 dBm			
San Miguel	5760.300	K6QPV/B	"	33 dBm			
San Miguel	10368.360	K6QPV/B	"	27 dBm			

Phoenix:

Name	Freq. MHz	Call	Altitude	Output	Grid Square	W Long.	N Lat.
White Tanks	1296.270	W7ATN/B	3992 ft.	40 dBm (10W)	DM33rn	-112.560	33.560
White Tanks	10368.375	W7ATN/B	"	33 dBm			

Events of Interest to the Amateur Microwave Community:

June 6	SBMS Meeting
June 8 – 10	ARRL June VHF Contest
July 4 (?)	SBMS Meeting
July 27	SBMS Microwave Tune-up
August 1	SBMS Meeting
August 3 – 4	ARRL 222 MHz & Up Distance Contest
August 17 – 18	10 GHz & Up Contest – Part 1
September 5	SBMS Meeting
September 14 – 16	ARRL September VHF Contest
September 21 – 22	ARRL 10 GHz & Up Contest – Part 2
September 29 – 30	ARRL EME Contest, 2.3 GHz & Up
October 3	SBMS Meeting
October 3 – 5	Microwave Update, Dallas, TX
October 5 – 6	Maker Faire, San Diego, CA
October 27 – 28	ARRL EME Contest, 50 to 1296 MHz. Part 1
November 7	SBMS Meeting
November 24 – 25	ARRL EME Contest, 50 to 1296 MHz. Part 2
December 5	SBMS Meeting

(Thanks to Marty Woll, N6VI for content) If you have other events or more information on the ones listed, please email it to brianaf6na-at-gmail.com or text it to 951-768-0960.