

# ***THE SAN BERNARDINO MICROWAVE SOCIETY (SBMS)***

***“Communicating at 1 GHz and Above – Since 1955”***

## **May 2019 Updates, Activity and News**



### **CONTENTS**

New Officers and Club Workers for 2019 – 2020  
The SBMS 2 GHz and Up Challenge  
The 2019 SBMS Microwave Tune-Up  
The WA6JBD 2304.320 MHz Beacon  
Owens Valley Radio Observatory (OVRO) Trip in July  
May Meeting Technical Presentation  
April Activity Reports  
Beacons

### **New Officers and Club Workers for 2019 – 2020**

Nominations for officer positions made in March were carried. SBMS officers and club workers for 2019 – 2020 are as follows.

President:	Jason Sogolow	W6IEE
Vice President:	Robert Carter	KM6RXN
Recording Secretary:	Courtney Duncan	N5BF
Treasurer:	Dick Bremer	WB6DNX
W6IFE Lic. Trustee:	Dave Laag	W6DL
Corresponding Secretary:	Jeff Fort	KN6VR
Newsletter Editor:	Brian Thorson	AF6NA
ARRL Interface:	Frank Kelly	WB6CWN
Lab Manager & Webmaster:	Dave Glawson	WA6CGR
Website Editor:	Rein Smit	W6SZ

### **The SBMS 2 GHz and Up Challenge Is Nearly Upon Us!**

The weekend of May 4<sup>th</sup> and 5<sup>th</sup>, is the SBMS 2 GHz and Up Challenge. Our neighbors to the north, The 50 MHz and Up Club, have been sending out planning emails for the event since February. Pull out your systems and make some contacts!

## The 2019 SBMS Microwave Tune-Up

Gordon West, WB6NOA met Brian, AF6NA at Costa Mesa City Hall and filled out the permit application for Fairview Park on Saturday 27 July 2019. Because “Gordo” is a Costa Mesa resident, the Parks department waived all fees. Gordon has promoted Amateur microwave in his online video shows, at radio conventions. He is a dependable 10 GHz participant at the annual Tune Up event and he usually shows for the 10 GHz contest. He has a great friend to SBMS over the past several years.



We will be equipped to test 10.368 GHz and 24.192 GHz radios this year. Fairview Park is a no-barbecue park, but they said sandwiches and snacks are fine as long as we manage the trash as we always have. Get your systems out and ready for the last Saturday in July. Testing commences at 9:00 AM.

## The WA6JBD 2304.320 MHz Beacon

From Mel, WA6JBD: “Thanks to the efforts and expenditures from Barry, W7BF and Gary, AF6HP, the Heaps Peak 2304 beacon is on the air after the antenna was replaced. The signal was detected with non-optimal equipment 17 miles from the site. I also received the beacon at my QTH in San Antonio Heights, 30 miles to the west of Heaps Peak. It came in at -130 dBm on a spectrum analyzer with a questionable helix antenna, 10' of phaseflex line, no filter or preamp, and lots of trees and ground clutter in the way. When last measured for frequency, it had drifted about 5 kHz high, so try looking for it at 2304.325 MHz. ERP is estimated to be about +30 dBm.” Rein, W6SZ received the beacon in Alta Loma using a coffee-can antenna.

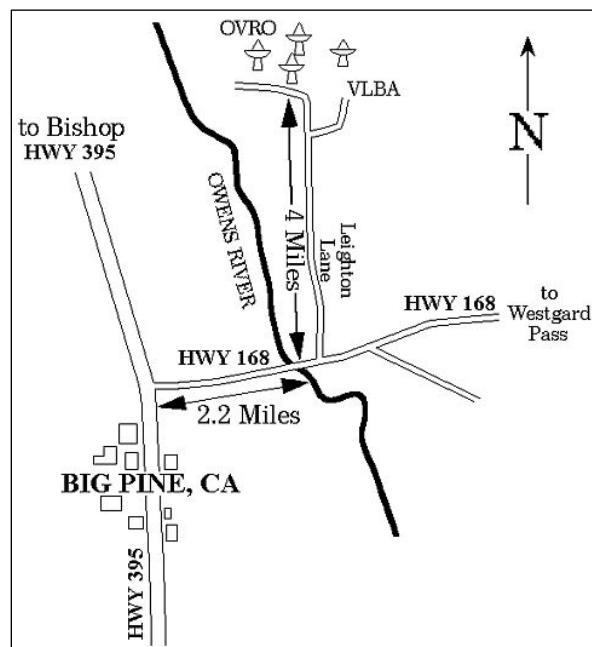


Wayne, N6NB received it in Orange County. Those with 2304 MHz equipment should point up toward Heaps Peak and use the beacon as a testing tool to check out your gear.

**Owens Valley Radio Observatory (OVRO) Trip – “SCIENCE BEYOND THE BOOK”**  
**Saturday, June 15<sup>th</sup> 2019 – With Dr. Doug Millar (K6JEY) and Cecilia Caballero**

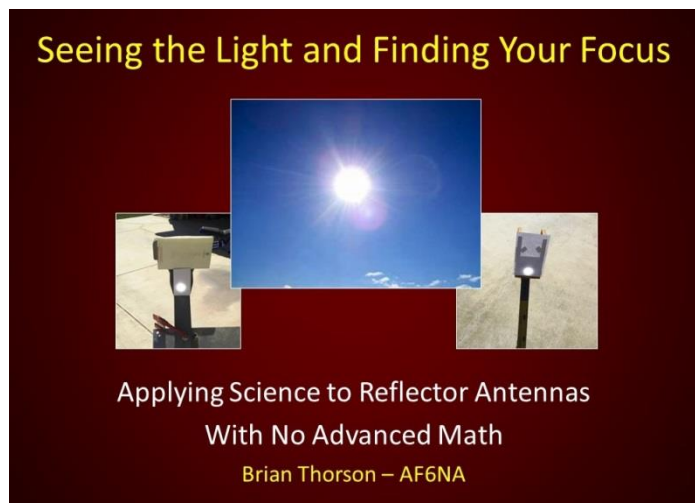


Please join us in July for an extraordinary science education event at Owens Valley Radio Observatory near Big Pine, CA. Included are science activities at the 40-meter dish antenna and a tour, walking a scale model of the distances of the planets, and night time astronomy. All the above is free and 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).

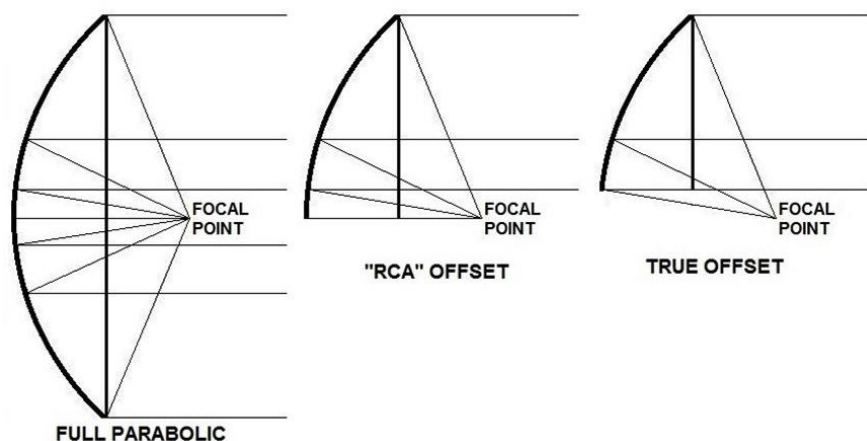


RSVP to: Dr. Doug Millar (K6JEY) – Cell 562-810-3989 – [drzarkof56@yahoo.com](mailto:drzarkof56@yahoo.com)

## “Seeing the Light and Finding Your Focus”

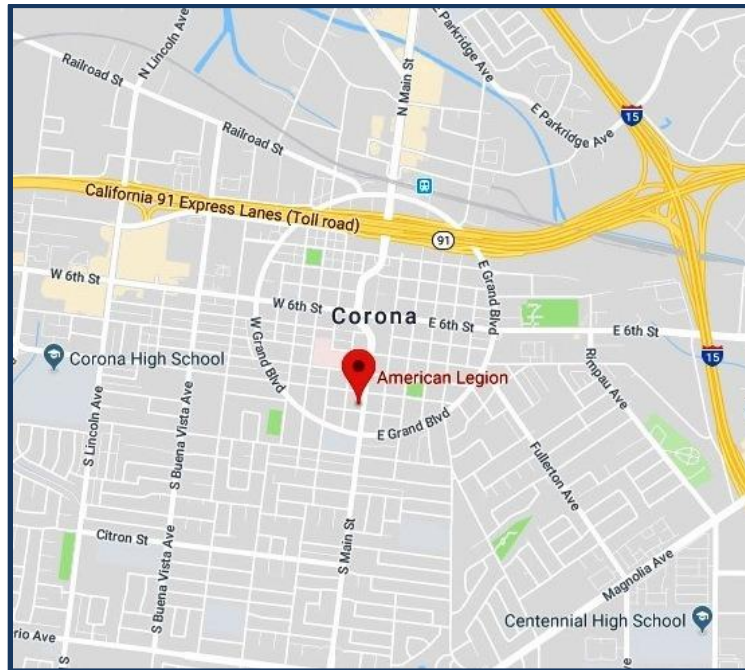


In a recent Amateur Radio publication, an article was published that presented some equations for finding the approximate focal point of a reflector antenna. The equations did not cover all kinds of reflectors, however, and the results were approximations, at best. At the May SBMS meeting, Brian, AF6NA 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  
417 South Associated Road  
Brea, CA 92821

Jason Sogolow	W6IEE	w6iee73-at-gmail.com	
Robert Carter	KM6RXN	laserdog3 -at- juno.com	951-289-5694
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**

## **April 2019 Attendee Activity Reports**

Mel WA6JBD— bought one of the GPS disciplined oscillators from Boldnar as mentioned by Doug Millar K6JEY last month. After playing around with it for a while he bought three more and was contemplating how well they might work as an LO for a rig. Using his rig under construction he measured the 10244 MHz source with a Rubidium as reference and with GPS device as a reference and performed phase noise measurements. The GPS disciplined oscillator was about 20 dB better than the Rube! (See plot in attached photo next to a 10 GHz slot antenna blank.) Also bought a x16 multiplier from Bodnar. E-mailed Bodnar about a beat frequency in certain synthesizer settings and they replied that there were algorithm changes that could be made in the development software that could clean this up

Courtney N5BF – Also bought one of the Boldnar GPS disciplined oscillators and one of the Israeli 3.3 GHz amplifiers as mentioned previously by Dave W6DL. Has opened both boxes but not gotten much further. Passed around his DB6NT preamp that he suspects failed due to water seepage and asked for opinions. Also, the 10 MHz TCXOs arrived from China and he is now ready to work on 10 GHz station repairs sometime in the next month. The DUBUS 23 cm EME competition (uncoordinated CW only) is April 13 and 14 UTC.

Larry K6HLH – Tried to hear the 2.4 GHz beacon. Dug up a transverter and oscillator, powered it up and heard nothing. Consulted with Mel WA6JBD (see Old Business). Now Larry has 2.4, 3.4, and 5.8 GHz in the same box up on the dish. Worked Pat N6RMJ in Arizona DM25re last night on 10 GHz home-to-home experiencing strange signals. The path is over 5300 foot mountains 50 miles west of Pat's house and 140 miles east of Larry's. Starting from nothing (telephone coordination) tried for half an hour, then signals were super loud 59+ for 30 seconds then dropped back to nothing. Possible airplane bounce but there was no Doppler signature. Was using 5 degrees elevation on a 1.5 degree beamwidth antenna. Kerry N6IZW was on home-to-home too but by the time Larry was finished in Pat everyone else was QRT. Would like to try digital modes such as FT8 with someone sometime.

Rein W6SZ – No activity.

Robert KM6RXN – Heard people on home-to-home last night but didn't work anyone, they couldn't hear him.

Eric AF6EP – Is working on putting a talk together about GNU Radio. Has a 10 meter IF radio. The next step is the transverter.

Jeff KN6VR – Was successful last year on 10 GHz and is now trying to improve the RF part of his radio in time for the July Tune Up. Textbook says gain and front end are most important but he has been working on his IF rig. His 1.2 GHz rig quit working three months ago. Thought the LNA was gone but eventually found a cable with the connector coming apart.

George KM6UKI – No report.

Bill N6WL – Only VHF/UHF last month.

Dave W6DL – Commented on N5BF's preamp. There is oxidation all the way around the cover and the case, so it's unlikely that there is not water in there. Water gets in anywhere it can. All antennas leak and need to have a way to get water out from inside. The DB6NT preamp isn't meant to be left out in the weather.

Professionally, Dave buys \$2000 boxes to put on towers and puts drain holes in them, not vents (which would just attract more water).

Dan AG6HF – Passed around flyers for a \$150 SDR workshop in which you get the SDR in addition to training. Showed his drone (pictured) with a beacon on it that he flies around Santiago and parks. Showed a plot of an antenna pattern he did by flying around it, or parking it at a high angle and moving the ground antenna around. Picked up some microwave 10.5 GHz radars on e-bay and could use them as sources. Passed these around too.

Dick WB6DNX – No microwave activity.

Jason W6IEE – Ordered a couple of LNBs from E-bay to play around with.

### **Amateur Microwave Beacons in the ARRL Southwest Region:**

#### Los Angeles:

Name	Freq. MHz	Call	AltitudeOutput	Grid Square	Long.	Lat.
Heaps Peak	2304.325	W6IFE/B	2705 ft. 27 dBm	DM14ed	- 117.797	34.152

#### San Diego:

Name	Freq. MHz	Call	AltitudeOutput	Grid Square	Long.	Lat.
San Miguel	1296.300	K6QPV/B	2500 ft. 40.1 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	AltitudeOutput	Grid Square	Long.	Lat.
White Tanks	1296.270	W7ATN/B	3992 ft. 40 dBm	DM33rn	-122.560	33.569
White Tanks	10368.375	W7ATN/B	33 dBm			