SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1955

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

SBMS Newsletter

Activities of the September SBMS Meeting

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

***Before the* Meeting: Sizzler's . . . however . . .**

(Six of us --those who prefer a real restaurant are going to Marie Callender's –see map for both below)

Tech Talk for the Meeting of Fourth of October

Jason Sogolow W6IEE, President

Guests (or Not-Seen-In-A-Long-Time)

- Jamie Ruiz KK6VRV, Riverside.
- Brian Comer KF6C, 10 GHz contester from San Marcos, and wife Jean.
- Dick Palmer WB6JDH, Whittier (a QRP specialist including a 1 Watt 10 GHz rig)

ATV check-ins

Gary W6KVC is operating W6IFE for SBMS coverage this evening from the new ATN converted news van (see picture). When asked by the public what news organization they are with, they say, ***"Amateur Television Network, No News is Good News."***

- Gordo WB6NOA, Costa Mesa. Will be in Buellton next weekend and will have his 10 GHz gear with him. Coordinate on Cactus.
- K6DVS, just watching.

What Our Members Are Working On (Activity Reports)

Jason Sogolow WB6IEE (Norco)

- forgot to take his tripod for the August contest weekend but had an omni antenna in his junk box and worked about 1/3 of the stations that came up. Getting the omni up off of the ground was the challenge.

Courtney Duncan N5BF (Eagle Rock)

– In the home to home last night, from a site on the Mesa Antenna Test Range behind JPL (see picture) worked Brian AF6NA tail-ending WB6CWN and Pat N6RMJ at his home direct across the mountains after an effort taking about 45 minutes. Lined up on the San Diego beacon to calibrate the direct bearing to Pat. Missed, but heard Frank WB6CWN and missed and did not hear Robert KM6RXN who only heard me when Brian and I were *both* talking. In the September contest weekend, the plan is to rove the San Joaquim Valley Saturday and Frazier Mountain Sunday. In August occupied Secret Site 51 Saturday and did coastal sites from Ventura to Malibu Sunday, making about 50 QSOs total. On EME, sent the RAS Prog AZ/EL controller off to Canada for repair and it did not come back in time for the ARI contest weekend. At great length (and told the long story of it involving special cables and interface boxes, old computers, banned software, hacking with HexEdit, and a “mini-UHF” adapter), managed to program a Motorola MCS2000 mobile 30-watt, 900 MHz rig for SJV repeaters for roving in the September contest weekend. Bought the rig surplus in 2017 but didn’t have time to get it working until now. Success will be to use it to coordinate one X-Band contact. The ordeal of getting it programmed was nearly worse than learning Morse Code!

Rein Smit W6SZ (Alta Loma)

- Had a CW/SSB QSO from his house to Malibu with Courtney N5BF on the August contest Sunday. Went to the Silicon Salvage open house but left the house at 11:00 so arrived too late for any of the good deals.

Jeff Fort KN6VR (Phelan)

– Right before leaving for Frazier in the August weekend, worked on a radio without testing it. Was OK at the tuneup, but some cables went bad between tuneup and Frazier. Quarter inch Heliax is not the same as 7/8. After some work, the radio performed well on the mountain.

Mel Swanberg WA6JBD (Upland)

– His only microwave activity last month was the contest. Saturday roved with Jason W6IEE and Jim KK6MXP for a couple of stops. In a low key operation they worked whoever came up and had a good time.

Brian Thorson AF6NA (Corona)

– worked Frank WB6CWN, Robert KM6RXN, and Courtney N5BF on home to home last night but not Pat N6RMJ or Jim KK6MXP. In the contest teamed up with Robert and showed him some of the good operating locations. At Soledad (San Diego) Sunday, saw some guys from the San Diego Microwave Group. Siting to Arizona, Brian decided to set up in a different location from the group, a place he now calls "upper Soledad." From there Robert worked Kevin AD7OI in Arizona on 350 milliwatts while the San Diego group on" lower Soledad" could not work AD7OI, even using more powerful radios.

Eric Fort AF6EP (Phelan)

– is getting settled into a new job so has not done much radio or microwave.

Robert Carter KM6RXN (Riverside)

- made 44 contacts during the August contest weekend including a couple with Gordo WB6NOA in his boat and had a good time with the competition. He had worked Saturday with Gordo at a Newport Beach site. Tried the home to home last night but could only could work Brian AF6NA from the hole where he lives.

Jim Blum KK6MXP (Ontario)

-- was on upper Soledad with Brian AF6NA. He told all onlookers that they were with the Department of the Interior tracking whales. Did Cajon Summit with Jason W6IEE the other day. Brought a shelter that gave Jason something to bolt his omni antenna to. The group then went to another site that Mel knew about where Jim's driver radio quit working. Borrowed one to keep going. Mel will be troubleshooting the broken one tomorrow. Listened to home-to-home and heard Courtney N5BF OK, but only on the liaison. Has some surplus equipment here tonight that he doesn't want to haul back. Pictures of Kevin AD7OI and Tammy KI7GVT and their mobile pickup bed setup were passed around.

Dave Laag W6DL (Marino Valley)

– went two different places during the August weekend, Saturday to a site by Idlewild and Sunday near Temecula, making bout 65 QSOs. Worked everyone in this room or will. Doing something like that makes it a pretty good microwave month. Per Courtney's Motorola programming saga –suggests that many here in the room have maintained every laptop that they ever used to program a radio in order to retain the ability to program them.

George Kashmar KM6UKI (Irvine)

–passed around his filters program plots and his data from a filter he built. He has received lots of advice from Dave W6DL about how to do this. Did pre and post test on a 20 dB pad. Bought a 10 dB directional coupler to help with testing.

Dan Slater AG6HF (Hacienda Heights)

– went to San Diego and got with Kerry K6IZW of the San Diego Microwave Group to see a microwave field probe system for measuring and aligning antennas. Dan is building a mechanical scanning device to go along with the software he has developed.

Walter Clark 337Ω (Fullerton)

– put together a 24 GHz long range motion sensor employing two detectors and one Gunn diode plus a polyrod at the focus of an 18" disk. It has two stages of amplification and a speaker. 24 GHz just right for this size dish (see picture); it has very little splash over with about 3 degrees field of view. He gave a demo, using a spinning metal box as a target and showing the sounds that occur when it detects motion. Later he took it outside and demonstrated the dramatic shift in Doppler as cars went by. In the picture is Walter, Dick Palmer and Jamie Ruiz KK6VRV.

Dick Palmer WB6JDH (Whittier)

– did not get on for the August contest weekend but did listen to liaison and had fun. He's been on 20 meters the rest of the time.

Dick Bremer WB6DNX (Brea)

– His microwave activity this month has been cleaning out the garage and bringing stuff to this meeting to give away.

Brian Comer KF6C (San Marcos)

– didn't hear anyone on the air from San Diego last night and only barely the Santiago beacon. He has good paths south (from San Diego) but not north. In the future will try a larger dish, and higher power. On contest August wanted to do serious bike riding to get to sites but was not allowed to so he and his son Andrew KK6EME hiked in. Got up on Julian and discovered that liaison did not work from there. Still managed to work 15 stations by just tai-lending other QSOs encountered.. Brian has a 4' dish with 65 watts and an 18" dish with 10 watts. The smaller system is easier to hike or bike with.

From Joe WA8OGS On Microwave Update 2018 . . .

Microwave Update 2018 will be held in Dayton Ohio on October 11-14, 2018. This international conference is an ARRL sanctioned event with published Proceedings - dedicated to microwave equipment design, construction, and operation.

See the program schedule at http://www.microwaveupdate.org/schedule.php
Includes a **Free** optional tour of the Voice of America on Thursday 2-5pm.

Free for Students with ID: Attend the seminars/forums/tours, and observe and/or participate in the Test & Measurement Lab activities, the Antenna Gain Measurements. (Note: Free participation does not include any meals or proceedings.) See the website for program details.

Events of Interest to the Microwave Ham Community

October 6	Microwave Sprint (902 MHz & Up) 0800-1400 local time
October 14	Logs Due for 10 GHz & UP Contest
October 27-28	ARRL EME Contest – 1.2 GHz & Down – 1st weekend
November 1	SBMS Meeting
November 24-25	ARRL EME Contest – 1.2 GHz & Down – 2nd weekend
December 6	SBMS Meeting
January 3	SBMS Meeting

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.

Amateur Television Network Deploys New Mobile Unit

ATN Staff Writer

After months of maintenance, and outfitting television equipment, the Amateur Television Network deploys their newly acquired video mobile unit and is ready to serve the ATV and HAM radio community throughout the region.

The mobile unit was generously donated to the ATN from Frank Kostelac - N7ZEV on behalf of the Red Rock Search and Rescue team in Las Vegas, NV. The unit is a 1999 GMC 2500 SUV, configured as an ENG live remote vehicle. The truck's first home was at KABC - TV in Los Angeles. After serving its useful life as a "news van", the truck was sent to the Las Vegas Repeater Association WA7HXO for their ATV and RACES / ARES emergency operations mobile unit before its transfer to the to the Red Rock Search and Rescue group.

"This is a truly a big breakthrough for ATN and ATV in general", says Roland Hoffman - KC6JPG. "With a 30 foot mast on the vehicle, we can clear most obstacles and transmit a video signal to one of our repeater sites in Southern California, Las Vegas, NV, and Arizona.", continues Hoffman.

The ATN mobile unit was deployed on September 6, 2018 to Corona, CA for the San Bernardino Microwave Society's (SBMS) monthly meeting Gary Heston - W6KVC drove the truck from Crestline to Corona and positioned the truck in front of the American Legions Hall where the meeting is held. With the microwave dish mounted on top of the 30 foot mast, Gary was able to extend the mast and was able to clear the trees for a line of sight transmission to the W6ATN Santiago Peak repeater system. Gary connected his video production equipment to the 220 foot multicore "snake" which sends and receives video and audio between his production gear to the mobile unit and is able to switch the transmitter on from the meeting room. With a few minor bugs to work out, the mobile unit transmitted great video and audio into the W6ATN's Santiago Peak repeater.

"The truck is equipped with both NTSC - SD format and DVB-T high definition format." Roland continues, "We are excited and looking forward to demonstrate the capabilities of the truck and the Amateur Television Network by showcasing our mobile unit at hamventions, club meetings, and emergency operations centers throughout our region.", concluded Roland.

The ATN mobile unit restoration project was truly a group effort by our members within the Amateur Television Network. Huge THANK YOU's to Mike Collis - WA6SVT, Gary Heston - W6KVC, Tom Board - WB6HYH, Steve Noll - WA6EJO, Dave Couch - KA6DPS, Roland Hoffman KC6JPG and many others ATN members and ATV'ers for their time and equipment / financial donations towards the completion of the ATN mobile unit.

September Meeting Tech Talk

(Normally this is a single paragraph review, but owing to its importance I've asked Courtney to do a more formal summary here. This is particularly important now that NASA has just approved the project for funding. His presentation last month was based on it being a proposal. Ed.)

A Mars Helicopter "technology demonstration| has been approved for inclusion with the Mars 2020 Rover mission. This talk discussed the 900 MHz IEEE 802.15.4 telecom system that provides two way command and telemetry interchange between the helicopter and its "base station" on the Mars 2020 Rover. Limited to 1.8 kilograms maximum mass for the entire helicopter assembly, the telecom system, including antennas and cables, is restricted to 13 grams. The radio consists of a commercial off-the-shelf (COTS) system on a module (SOM) with a power output of 750 milliwatts

on 914 MHz and receive sensitivity below -100 dBm. Two over-the-air data rates are supported between identical telecom nodes on the rover and on the helicopter: 20 kbps and 250 kbps, which are selected depending on conditions.

The Mars surface atmosphere being very thin, around 8 torr, equivalent to 100,000 feet at earth, gravity is also lower, about 38% of earth's. Prototype helicopter models have been flight tested and environmentally tested under Mars-like conditions in environmental test chambers at JPL. Basic helicopter aerodynamics was also discussed.

During the actual mission, currently planned for April - May 2021 (after Mars landing in February 2021), five flights or "sorties" are planned, first to demonstrate basic flight on Mars, then to demonstrate additional navigational capabilities. Future Mars or even planetary helicopters could be used to scout locations where rovers cannot safely reach, in cooperation with or independently from host rovers, to performance advance regional surveys, or to transport materials such as earth return samples as part of a sample return scheme.

Mars Helicopter to Fly on NASA's Next Red Planet Rover Mission

https://www.nasa.gov/press-release/mars-helicopter-to-fly-on-nasa-s-next-red-planet-rover-mission

The Antarctic Impulsive Transient Antenna (ANITA)

Recognize the ridged horn construction? Notice that the E field response is both polarization orientations. It is for the detection of Cherenkov radiation in the UHF emitted by ice from neutrinos entering the other side of the earth. This uses the earth as a neutrino-pass filter.

For more on ANITA see this online article from Scientific American: https://www.scientificamerican.com/article/bizarre-particles-keep-flying-out-of-antarctica s-ice-and-they-might-shatter-modern-physics/

I haven't read a Scientific American article in years, but I've been told their editorial style is more like Popular Science than 30 years ago when I was reading it. You can sure tell it here. It reads like there's some big mystery about to breakthrough and all we know about physics will be turned over.

Do use the SBMS Reflctor to comment on ANITA. Or to comment on my comment about the editorial style of Scientific American. (By the way, I don't mean to disparage the change. I prefer the more accessible style. Shoot, my own style-prefernce has reached an all time low. If I can't find a 5 minute video on youTube, about some subject, then I don't need to know about it. Ditto on stuff I buy. If it isn't at Home Depot, I don't need to own it.)

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 (email: wa6jbd (at-symbol) Verizon dot net)

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.

Wednesday before the meeting: 10,368.100 MHz, SSB ,CW and Digital available.
WA6JDB, N6RMJ and W6SZ will be looking/listening for your signals. For liaison, we will use the LARA/Cactus repeater located on Heaps Peak, so desert dwellers can check in.

We'll be listening to cactus starting at around 20:00 PDT and going until the last person gives up.
The frequency is 448.86- PL 100.0 It will be configured in a standalone 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

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:

https://batc.org.uk/live/w6atn That should take you directly to the camera at the SBMS meeting. (batc.tv is British website, W6ATN is the local callsign.)

What you will see is this →

You do not need to log in to be able to watch the video and participate in the chat. In case you are not 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.

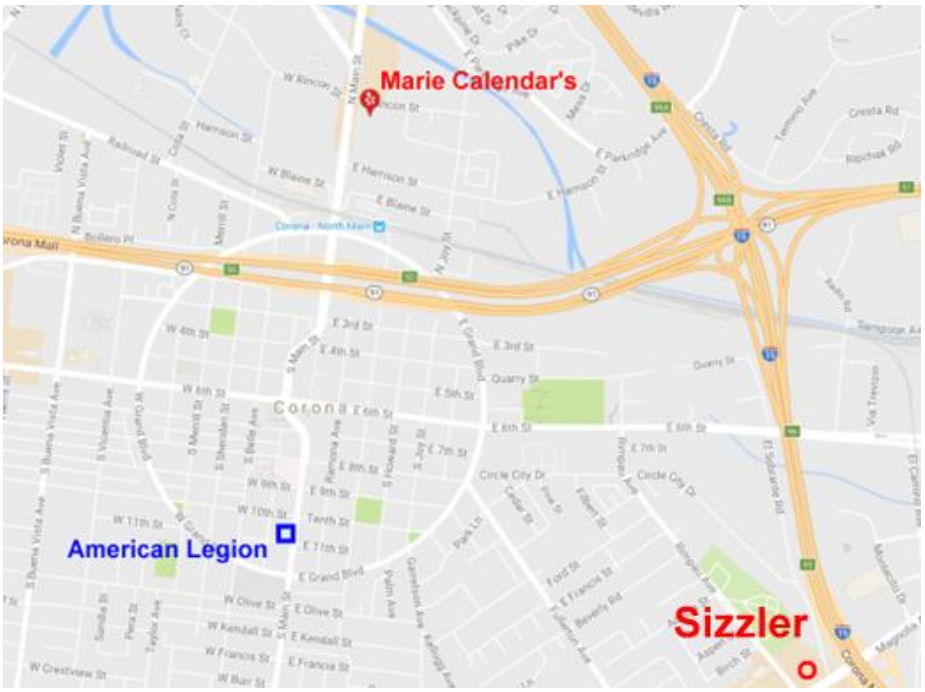
- Gary transmits analog first.
- Snow Peak is the first digital station.
- There is a 2-3 second delay to digital users.
- There are also nodes on Mt. Potosi and Mt. Lemmon.
- Note: some meetings are recorded for archive.

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).

Dinner before each meeting Sizzler:

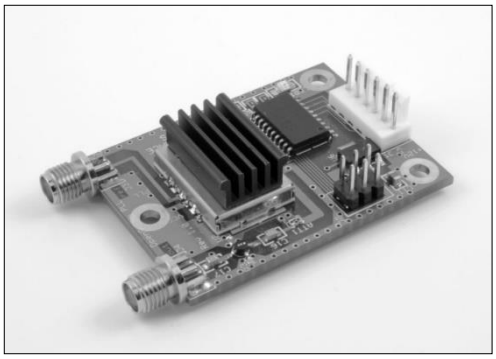
"Dinner-Before" is like a people capacitor in that it is a gathering place for those who are trying to beat the traffic and have a variety of distances to come from. Some arrive as early as 4:00. Magnolia exit then two right turns. (I'm Soooh tired of that place. ed)

For those who prefer attractive waitresses and fine dining. Marie Calendar's is available.



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

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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

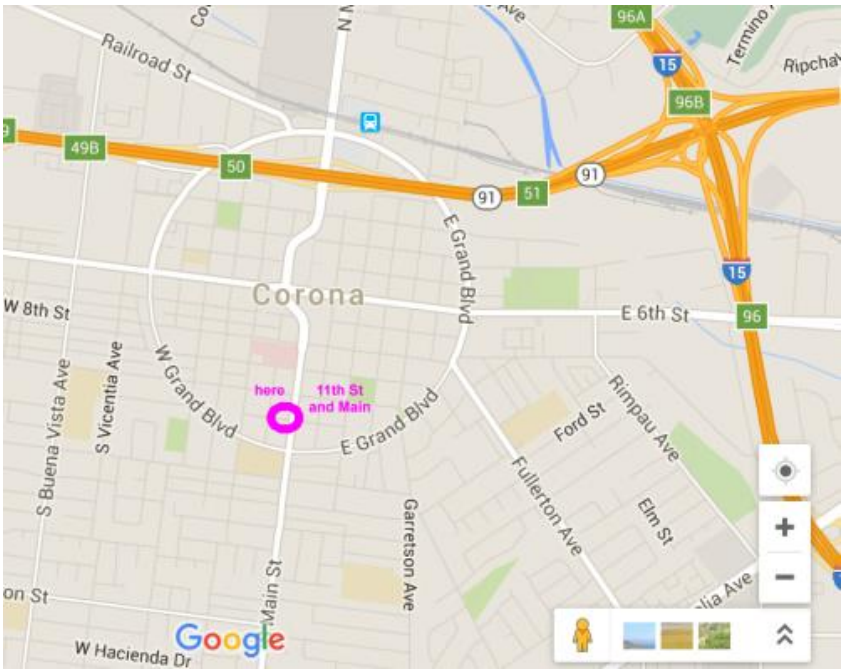
417 South Associated Road #146

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.

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:

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