



SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1955

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

SBMS (W6IFE) Newsletter For April 2013

The **April, 2013 SBMS meeting** will have a talk by Dan Slater, AG6HF about antenna and electromagnetic field measurements. Much of the focus will be on aerospace near-field antenna measurements but the presentation will also include some related discussion of EM field visualization, radar and interferometry. Dan Slater is vice president and co-founder of Nearfield Systems Inc, an aerospace company that manufactures antenna measurement systems.

Activities of the San Bernardino Microwave Society

Based on Notes Taken at the Meeting of 7 March 2013 in Corona

Guests Or Members Not Seen In a Long Time

- Leva Jensen, daughter of Dan Welch
- Shirley Banes, Hughes Associate of Dennis's

OVRO Mount Project

- Mel heard from Robin of a 12' Ka band dish. Dennis Kidder will look into how easy it is to transport
- Dennis reported that the controller that was not working will be fixed by the OVRO staff.
- Dennis also said that Doug's proposal has been submitted to Mark of OVRO. This proposal is a formality for the long term use of the mount.
- Dennis also reminded us of the June 8th Open House there and the June 22 OCA Star Party which we are also welcome to. (Contact: drzarkof56@yahoo.com)

Members and Guests by Way of ATV at the March Meeting

An ATV ham from Ventura came on the monitor (didn't get his call sign) expressing gratitude for the talk Doug gave last month on test gear and with that added confidence went out and bought something.

Don Hill K6BXT told us that Pat, N6RMJ was watching and wanted us to know his tower is up.



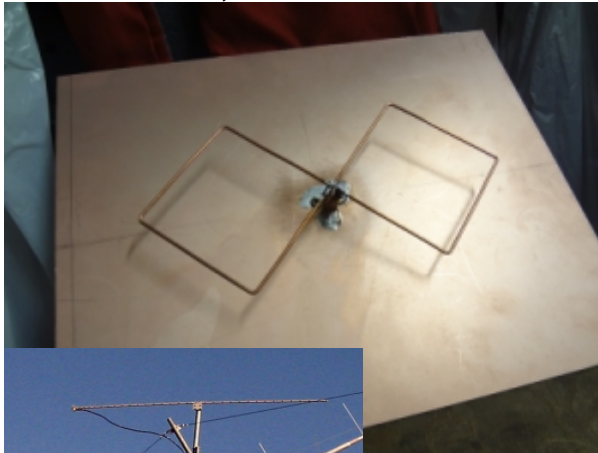
Hams online watching via ATN and BATC:
K6HTV KE6BXT KE6ZC N6AZV N6GKB
N6RMJ W6BY WA6EJO WA6ZKY

Tech Talk at the March Meeting

Dennis gave a talk on the philosophy of Maker Faire and invited us to participate with him and Wayne Yoshida at the one in San Mateo this May 18th. The title of the booth is "It's Not Your Grandpa's Radio Any More."

What Our Members Are Working On

Brian Thorsen, AF6NA from the new city of Eastvale



Added to his antenna collection; a 2.4 GHz bi-quad antenna. He had it analyzed by Chris and was found to have terrible return loss. There was no discussion on what to do to fix it however.

Larry Johnston W6HLH

said his 60' tower is up with 10 watts on 10 GHz . See photo to the right.



Jeff Fort KN6VR

is working on power dividers

Dan Welch W6DFW

finished 10GHz antennas and made a 5.7 GHz antenna prototypes.



Mel Swanberg WA6JDB made network analyzer measurements of a prototype 5.7 GHz slot antenna for Dan Welch, W6DFW. Mel also installed a 5.8 GHz microwave link from Johnstone Peak to Sunset Ridge for Cactus. On the left is the 3 foot dual polarity dish on top of sunset Ridge 80' tower. It's fed with two 100' runs of 1/2" Heliac. One polarity will be used for Cactus link traffic, the other will be used to provide internet connectivity to Sunset.

Marty Woll N6VI

is our regional ARRL representative. In that role he has prepared the draft 5 GHz and 10 GHz national band plans which will soon be published for comments. The graphics part of his report can be seen below.

Courtney Duncan N5BF/6

brought to share with us a Cassini diplexer. It is said to have an isolation of 160 db.



In the photo with the diplexer is Jeff Forte, Larry Johnston and Rein Smit.

Courtney is presently studying the web for tips on improving his 10 GHz rig.

Ed Munn, W6OYJ San Diego

Said that one of the San Diego guys Lee Scheppmann KD0IF started retirement and looking into doing some serious EME. Lee is modifying an Endwave for 24 GHz. Ed brought to share with us an example of a conversion of computer hardware (a Linksys router) to ham purposes. In this case it is to use on ham bands at higher powers than part 15 computer store gear is limited to. The application is for hams to link computers over a local network of two or more computers.

See below for more on the relationship between the San Diego Microwave Club and the SBMS.

Dick Bremer, WB6DNX Brea

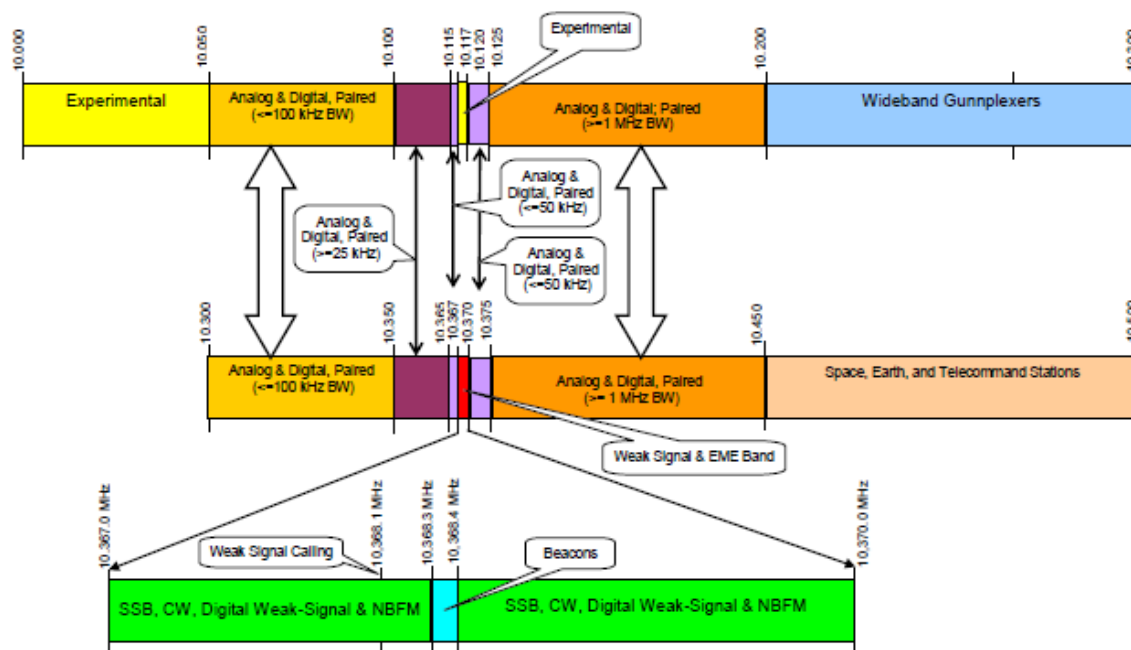
Still in the process of cleaning out his office.

Chris Shoaff N9RIN

has a fabricated PC board that will need to be assembled and tested in order to be the 10 GHz oscillator for the Standard Beacon.

10 GHz and 5 GHz Band Plan (A Preview)

Proposed Band Plan for the Amateur 3 cm Band (10.000 – 10.500 GHz)



Our Marty Woll N6VI is regional ARRL representative and also a member of the ARRL UHF / Microwave Band Plan Committee. He shared the Committee's draft band plans for 5 cm and 3 cm at the March meeting. ARRL has now published those draft plans for comment. You may submit any questions or recommendations via e-mail to microwave-band-plan@arrl.org by the end of April.

When asked what in these band plans is different, Marty had this to say: for Southern California is "practically no difference", since our mature regional plans have become the models for the new national band plans. The old national plans had nothing in them except for defining a small segment for beacons.

These won't become FCC requirements; they are more on the order of industry standards that users (hams) are not required to use, but will find very useful to follow if they want to find anyone else doing what they are interested in. Note for example places dedicated to QRP and note especially how much space is given to beginners that use Gunnplexers.

To see the plan for 5 cm and a more thorough discussion on 10 GHz go to this page of the SBMS website:

http://www.ham-radio.com/sbms/10_5_ghz_bandplans.html

SBMS Contests Coming UP

The San Bernardino Microwave Society (SBMS) is sponsoring a 2 GHz and Up Club Contest in May.

Get ready. For this year, the 2013 contest period runs from 6 a.m. Saturday May 4 to 8 p.m. Sunday May 5 local time.

For more on this Contest... on OUR contest... on our SBMS CONTEST see "Activities" in the SBMS website. You should have it memorized by now. . .

- Google then SBMS
 - click on our website
 - then Ctrl-F and "Activities"
-



What Our Members are Doing . . . In Space

Jerry Martes has been working on a project to track polar orbiting satellites at 8.2 GHz with a 2.4 meter dish. The biggest challenges are mechanical. This is just some of the drive mechanism.

Here's the 2.4 meter dish →
Jerry can position his dish anywhere above the horizon to a resolution of $\pm \frac{3}{4}$ of a degree as commanded by his PC. He uses a program written by

a ham friend in Finland.

In February he pointed his dish at the Sun with an 8.2 GHz LNB and

found an apparent sun diameter of 1 degree wide at -3dB. According to my calculations, that's about the theoretical limit of a 3.2 meter dish.

Jerry has a slightly larger (2.8 meter) aluminum dish on a polar mount that is positioned by linear actuators. They are not computer controlled so it is only suitable for precisely pointing it to geostationary satellites such as the GOES. There's two GOES satellites on our hemisphere. He is not capable of receiving images from these yet.

Diameter of your satellite dish	Frequency
<input type="text" value=".5"/> metres	<input type="text" value="10.5"/> GHz

[Click to calculate result](#)

[Click to default values](#)

dB contour down	Full beamwidth degrees	Half beamwidth degrees	Gain dBi
3	3.96	1.98	29.93
4	4.57	2.29	28.93
5	5.11	2.56	27.93
6	5.6	2.8	26.93

When I told Jerry I calculated the beam divergence, he sent to me this link to a very useful website . . .

<http://www.satsig.net/pointing/antenna-beamwidth-calculator.htm>

It calculates the beam width and gain, given the frequency and diameter. Here's an example for a 20" Dish Network dish. →

Needless to say these gain values and beam divergences are useful for terrestrial applications as well.

Upcoming Meeting Tech Talks

April 4 SBMS meeting- election of officers-Near field antenna range with Dan Slater.

May 2 SBMS meeting-ruggedizing your gear by Mel WA6JBD

June 6 SBMS meeting- show and tell on the 1 to 5 GHz bands. What does the equipment look like and what can you do on these bands.

July 4 SBMS meeting-Beginner microwave talk for other clubs. Dennis, W6DQ will show us how to do such a talk.

August 1 SBMS meeting- contest preparation

Wants and Gots for sale.

For Sale: 30w 1296 MHz PA kit \$50 + \$5 for US shipping Chris Shoaff, N9RIN
cshoaff@yahoo.com

For Sale: 10 GHz slotted waveguide antennas \$55 kit, \$80 assembled plus shipping Dan W6DFW W6DFW@apex-scientific.com

NEED- HP 8694 8-12 GHz sweeper plug-in for 8690 main frame Chuck WA6EXV
760-382-0709

Want- an X-band plug-in for HP8620 sweeper. Bill WA6QYR bburns@mediacombb.net

For Sale- Pre-estate sale- Ask Bill what you are looking for and he may have it for a good price.
Bill WA6QYR bburns@mediacombb.net

Bill is also offering for sale and in some cases given away:

Solar panels 12v 12 inches by 24 inches free.

40 meter vertical \$5

Butter-nut 4 band vertical \$20

Homemade 6 meter j-pole ½ inch copper pipe \$15

4 homemade 220 MHz 9 el beams- free

Cushcraft 220 MHz 7 el beam \$20

2 Cushcraft two meter 11 el beams \$30

2 meter 13 el beam \$15

Many 920 MHz 9 el M Squared beams less feed \$5 each

Homemade 2 meter 5 el cross polarized satellite beam \$10

Cushcraft 440 MHz 9 el cross polarized satellite beam \$10

Az/el rotors for satellite beams with fiberglass boom \$20

TVRO dishes 10 ft, 6 ft and 5 ft free

2 motor home motorized Az/el 5 ft TVRO dishes \$10 each

Teco 108-156 MHz helical antenna 4ft long \$10

6ft 19 inch open rack \$5

6 ft 19 inch rack \$5

Andrew LDF-4-50 (1/2 inch 50 ohm) heliax coax cable in 50 to 70 foot lengths \$5 each

Guy wire 3 strand #12 copper plated steel by reel or by coil free

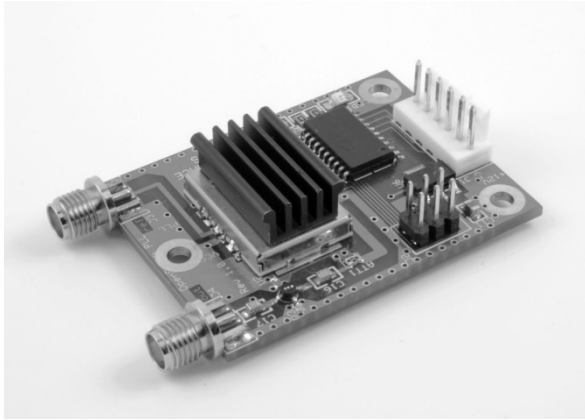
Commercial CB vertical 10 ft long Free

Misc steel plate, pipe and rod free

Bill WA6QYR 247 Rebel Road Ridgecrest 760-375-8566 bburns@mediacombb.net

Member Ads

60 degrees North Electronics Company. I am starting up a kit making service for assembling certain kits made by Down east Microwave. For those that do not want to make their own kits or maybe it's gotten too difficult, or just don't have the time or want assembled kit faster than DEMI can supply it. This one-man business so I will only be able to build a limited number per month. My price is the same as offered by DEMI assembled, plus shipping which should be medium-size flat-rate priority mail in the US. I am expecting to be able to deliver within 30 days of receipt of paid order. Contact Ed Cole: <http://www.k17uw.com/60NE.htm>



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>



← 10 GHz slotted waveguide antennas \$55 kit, \$80 assembled plus shipping Dan W6DFW W6DFW@apex-scientific.com

Member Dan Welch is taking orders for the next batch which will be sometime around August; in time for MUD.

Mystery Microwave Gismo of the Month



The prize? Glory
You get a momentary bit
of respect from the other
readers of the SBMS
Reflector who know your
name. That's all we got to
offer.

(But then what else is there that elderly nerds live for?)

Information 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). At least one meeting a year are joint meetings.*** 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 a 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 at the American Legion Hall, Corona. For car pooling from North Orange County call Walter Clark @ 714 882-9647

SBMS Group Email *The Reflector*

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> (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.)

The SBMS Website and Newsletter

The SBMS Reflector is ephemeral. There's no record kept. The Newsletter has a slightly longer life. It is sent to members and past issues are recorded in the website. It's URL

is: <http://www.ham-radio.com/sbms/> You don't have to memorize that or write it down, just enter SBMS into any internet search engine.

Newsletter: Walter Clark: walterClark@roadrunner.com

Website: Rein Smit: rein0zn@ix.netcom.com

The newsletter is created about the middle of the month and broadcast as a link inside an eMail letter to the members. This is mailed to you on the weekend prior to each meeting. SBMS Newsletter and website material can be copied as long as SBMS is identified as source.

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