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 February 2014

Activities of the San Bernardino Microwave Society

Tech Talk for the February 6th Meeting

Our February speaker is SBMS member Marty Woll N6VI, who will present “The Strategic Elements of Radiosport as Applied to Microwave Contests.” Achieving a top score in a microwave contest isn’t just about having the biggest dish or making the longest contact. Your strategy affects choices you have to make, and club activity plays an especially important role. Marty’s presentation will also address specific operating skills and practices that can enhance your efficiency – and your score. He will give examples specific to SBMS.

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Activities at the January Meeting of the SBMS

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

Guests Or Members Not Seen In a Long Time

- Jim Steffen KC6A (WA6SSZ) Fallbrook

Old Business

Pat Coker sent out the formal request to host the 2015 MUD Conference.

New Business

- **Doug Millar wants ideas for new speakers. We are to suggest them at the February meeting. Here from the January meeting were a few ideas:**
    1. **Arduino for ham applications**
    2. **Feed horn design**
    3. **SDR radio; cheap and dirty**
    4. **LNA front-end noise figure, lowering and measuring it.**
- **Doug volunteered to be VP pro tem (for the time being) and the secretary declared him so in the notes after the president (Chris Shoaff) recognized unanimous consent by the members.**
- **Jeff Fort has been studying the bylaws and in there found that we are supposed to have a membership chair. The name "Larry Johnston" came up but he wasn't there to accept. Nor was there any discussion as to what his role would be.**

Upcoming SBMS Meeting Tech Talks

Doug has scheduled some meeting talks and this is a tentative list:

- March USB Vector Network Analyzers
- April Walt Clark on Visualizing Radio Waves
- May Software Defined Radios; Practice and Theory
- June Rhode and Schwartz New techniques in measurement

For information on other events… see “Activities” in the SBMS website, which, you should have memorized by now

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

A Small Sample of SBMS History

Ed Munn sent us this picture of Don Hendrix, K6VYC in 1960 era. He had a beer can polaplexer with klystron oscillator and homebrew horn antenna. His location in the picture was just SE of Corona. Now he has call sign NT7N, in Redmont, Oregon.

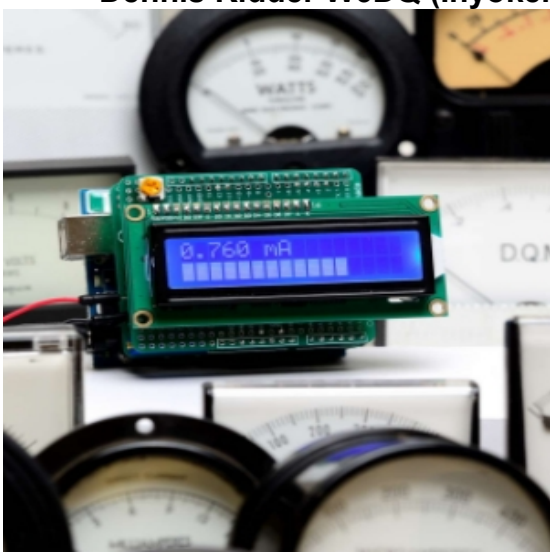
What Our Members Are Working On

- **Pat Coker N6RMJ (Lake Los Angeles)**
  was busy instead…. buying cars for his family.
- **Rein Smit W6SZ (Alta Loma)**
  did some noise measurements and participated in EME with Doug in Long Beach

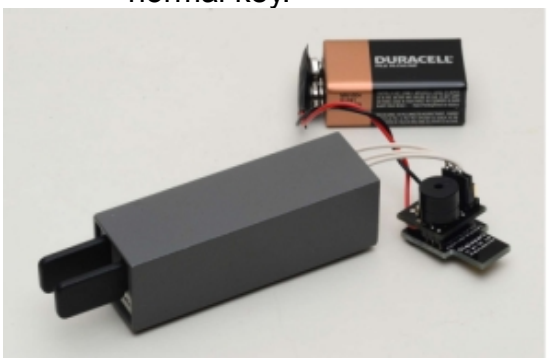
- **Dan Welch W6DFW**
  who passed away on the 30th of January was still taking orders for his WR90 waveguide antennas at the January meeting. (See the formal announcement below) To the right is what he was recently famous for→
- **Mel Sanberg WA6JDB (Upland)**
  - achieved the longest QSO in the most recent 10 GHz contest. (Achievement enough to show up in QST –ed.)
- **Wayne Overbeck N6NB (Tustin)**
  - is preparing for the January ARRL VHF contest which for him will be all the way from 6 meters to 24 GHz; roving.
  - o Wayne introduced Jim Steffen who has been a ham since 1961. He had a big signal on VHF in the 1980s and 1990s but inactive over the last 15 years..
- **Jim Steffen KC6A (Fallbrook)**
  is an extremely experienced ham but has not been active above 1296. He recently asked Wayne to set up a tower trailer at his home in Fallbrook to evaluate the location on the microwave bands.
- **Jerry Mulchin N7EME (Cortu de Caza)**
  Is involved in a search for a new QTH
- **Tom Curlee WB6UZZ (Fullerton)**
  is working on his GPS based 10 MHz frequency standard
- **Bill McNally N6MN (Seal Beach)**
  is now inspired to do EME and busy doing his homework.
- **Doug Millar K6JEY (Long Beach)**
  - was host to the biggest OVRO field trip ever; 45 kids
  - The latest addition for OVRO is a new HF capability with 15 new dishes in the array. (See photos of this adventure below.)

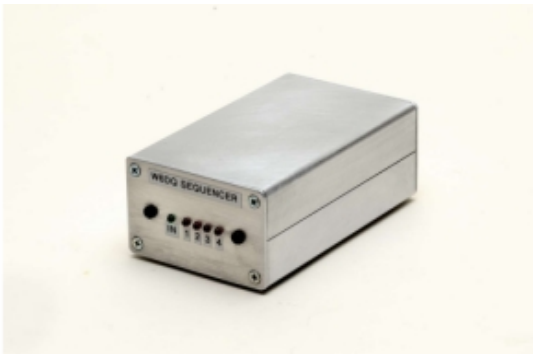
- Doug bought a new analyzer and is helping Bill McNally with JT mode on 1296 MHz.

- **Dennis Kidder W6DQ (Inyokern/Fullerton)**



  - announced that D-RATS would like SBMS to do the microwave demo at the DRATS hamfest in Palm Springs
  - Participated in Maker Faire in San Diego with Walter, Wayne Yoshida and Kerry Banke. Extremely well attended.
  - He is 50% finished with his book on ham applications on Arduino.
  - For show and tell, he brought a synthesizer that is based on an Analog Devices chip and a Digispark controller that is in a keyer he built; the whole thing is not much bigger than a normal key.





- **Ed Munn W6OYJ (Sand Diego)**
  was also at the Faire and was impressed by how many young people there were and what an opportunity it was for them to see a technical career and hobby for them.
- **Chris Shoaff N9RIN (San Clemente)**
  devoted all his free time (December) to cleaning the lab that takes up most of the room in his garage.
- **Jeff Fort KN6VR**
  is presently occupied with installing stairs to the part of the ham shack that is on the roof.
- **Ed Murashi WX6DX**
  Thanked Dennis for hosting the Christmas Party (and Dennis in turn thanked the club for their participation)
- **Don Hill KE6BXT (on ATV)**
  did some broadband testing (an 11 mile link)

- **Robie WB6CJZ (on ATV)**
  is working on his 10 GHz ATV transmitter

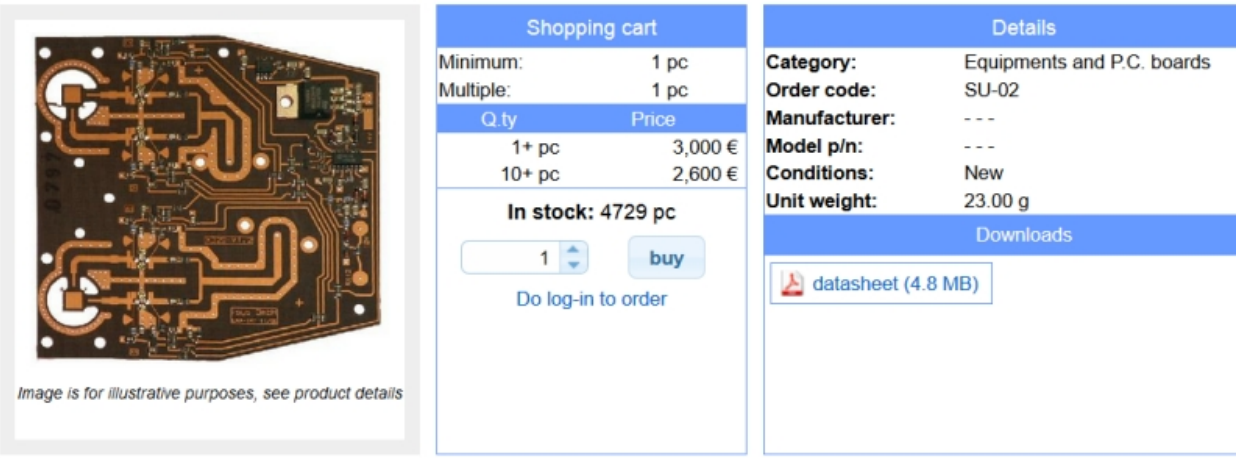
Doug Millar's OVRO December Adventure

Dan Welch W6DFW -SK

Here is Dan in his familiar seat (second from left) at an SBMS Meeting. Next to him here are Mel Swanberg WA6JBD, Jeff Fort KN6VR and Larry Johnston K6HLH.

For Those Interested in Satellite Dish LNAs . . .

Here's just the populated circuit board, not yet installed behind the feed horns.



(The comma in the price above, I think is a decimal point. Placing this board at $4 each. –ed) Here's the link to buy one:
http://www.rf-microwave.com/eng/catalog_view_item/0/5-equipments-pc-boards/4-SU-02.html

Here's what Dr. Jerry Johnson K0CQ has to say about their use on 10 GHz . . .

LNB boards they are, in the SU-02 boards they are for dual feeds and circular polarization using dielectric polarizers in the waveguide to the feed horns. I'm using a single horn with the polarizer removed and the waveguide bored out to 3/4" with a SMA probe on my 10 GHz rover station. According to W9FZ's report on 2013 10G+ I scored the third highest in the country on 10G alone. As a feed IT WORKS!

I have opened up at least three LNBs. Sometimes it's a real pain to get the case open, sealed with epoxy after screwing down and often the board has had a corner stuck to the cover so the board got ripped when the cover came off. So far it's always been at the IF coax end that got ripped up but that part of the board isn't so useful for hamming.

The beauties of the boards offered by Franco Rota are that they are not in cases, they have four sets of RF sections, there are relatively long 50 ohm runs, and they are documented. The transistors were super in their day but are mostly dreams now though Kuhne is still selling boards to use those parts up to 24GHz for sure.

The most modern LNB I opened has a very interesting IC that takes in the voltage on the IF, and the tone sometimes superimposed on the IF and selects the RF section for the desired polarization and selects the LO, while it does active biasing of the FETs on the active channel. It samples the drain current of each stage and sets the gate bias for the desired drain current independent of the device to device and temperature variations. I've seen it applied recently in some ham publication. That was a European standard LNB and it had two stages of RF gain and a common FET mixer.
73, Jerry, K0CQ

Use on 8.4 GHz

Since they were made for 10.5 to 12 GHz the active devices should work well at 8.4 GHz. I would consider removing any 1/4 wave bias chokes, replacing them with thin wire (the thinner the greater the bandwidth) about 20% longer. Radial bypass triangles I would plan on lengthening the broad end about 20% of the length from the point where it contacts the choke trace to improve the bypassing at 8.4 GHz. Or some have just put a snow flake on that end of the bypass triangle and found improved performance. Then one can only hope that the traces between devices are long enough to get the snowflake to an optimum position at 8.4. I suspect the performance as is at 8.4 isn't bad, that the only slight selectivity is in the bias chokes and

the bypasses which tend to be wide band until a real filter is encountered or a couple quarter wave fingers are used for coupling in place of a coupling capacitor.

73, Jerry, K0CQ

The January meeting Tech Talk was by Dennis Kidder W6DQ.

It was on the WW2 and after period of Communications Radios. Part 2 of his: **History of the Development of Modern Receivers.** Most of it was on ham receivers and so many of the old timers in the audience were more than interested; they experienced nostalgia.

Members and Guests Watching on line by way of Gary Heston's ATV Mobile Studio

Don Hill KE6BXT reported to us the call signs that were in the BATC Chat room:

AF6NA
K4QF
KC6JPG
KE6BXT
KE6ZC
KF6PGT
KL7UW

Microwave Mystery Device of the Month

(The other side is a waveguide flange that is 90° to this one on this side.)

Needs, Wants and For Sale

- **For Sale:** 30w 1296 MHz PA kit $50 + $5 for US shipping Chris Shoaff, N9RIN cshoaff@yahoo.com
- **For Sale from Bill Burns** (Bill will only rarely come to the meetings, so if you want any of this, please contact him by email at . . . bburns@mediacombb.net)
  His address is: 247 Rebel Road Ridgecrest CA 93555 and phone: 760-375-8566
  - 8 watt 5 GHz TWT's with power supplies $50 each
  - HP 410B Multimeter with RF probe and manual free
  - copper wire enamel coated #14 many feet coils $10 each
  - Bencher BY1 Iambic paddle key $90
  - ARRL books- Cynthia Wall mysteries Disappearing Act; A Spark to the Past; Hostage in the woods; Easy Target; Fire Watch; Night Signals; Walker Tompkins- SOS at midnight; DX brings danger; Grand Canyon QSO; CQ Ghost Ship … good reads for all ages $0.50 each
    Bill WA6QYR

Member Ads

Sixty North Electronics

Kits Made by member KL7UW

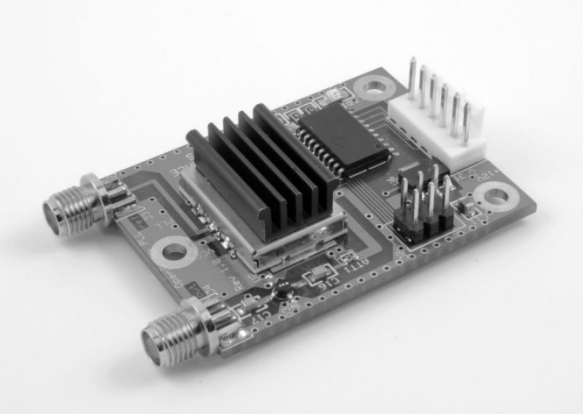
Let Ed Cole assemble your Down East Microwave kit. For kits in stock, he can deliver an assembled unit to your custom design preferences within 30-days of a

paid order. **His prices are the same as you pay DEMI for an assembled transverter, but much quicker delivery time. And comes with 90-day written warrantee on labor (guaranteed to work)!**
Shipping for a transverter is typically that of medium-size flat-rate Priority Mail anywhere in the USA.

For examples of his work click on… **http://www.kl7uw.com/kits.htm**

Contact him at kl7uw@acsalaska.net

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

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 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 at the American Legion Hall, Corona. For carpooling from North Orange County call Walter Clark @ 714 882-9647

The Reflector (SBMS 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 (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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