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 August 2013

Tech Talk for the August 1st Meeting

No Tech Talk. *Instead: preparation and organizing the August contest.*

Activities of the San Bernardino Microwave Society

Based on Notes Taken at the Meeting of 6 June 2013 in Corona

Tech Talk at the July Meeting

Dennis Kidder W6DX outlined some of the things this society should do to get more hams involved with microwave.
There was a great emphasis on bands lower than 10 GHz and in particular the 2304 band.

Guests or Members Not Seen In a Long Time

- Bob Ken Bourn (OC RECES)
- Bob McFadden KKCUS
- Frank Kromann Trabuco Canyon (with ties to Denmark)

Members and Guests by Way of ATV at the July Meeting

- Gordo said he will be at the Tune Up
- Mark A Fischer W6MAF (Hisperia) checked in with his grandson hamming it up in the background

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Important Points of the July Business Meeting

- **2 GHz and Up Contest:**
  Northern Lights Radio Society won with 18,000 points. We can in second place with one contact (Marty)
- **Tune-Up**
  Brian reminded us about the Tune-Up and the BBQ after words
- **Ed Murashi**
  reported that Tom Board wrote an article on Gary's regular radio transmission of the SBMS meetings

What Our Members Are Working On

- **Dick Bremer**
  is still in the process of major cleaning and tossing out of books

- **Dick Palmer**
  was involved with his first activity night but lost track on when the next one is. Rein Smit said he will organize it better next time

- **Doug Millar**
  - Doug said that they had a very successful visit to OVRO with about 20 people. Good tour of the dish, liquid nitrogen experiments and a tour of the lab. They showed us their 300 GHz receiver. On that visit one of the kids expressed great interest in obtaining an Rb atomic clock. Since delivered.
  - Found that many of my 10 GHz cables were no good. Bought some new Aeroflex ones. Testing 7289 tubes to get another amp on 23cm EME. Helen is working on her General Class license. Highly recommends Dennis's talk in September on the history of receivers.

- **Bill McNally**
  - is adding a synthesizer for more stability and is struggling with his antennas.
  - He made contact with Brian by way of a reverse beacon.

- His long range goal is to communicate with Hawaii in whisper mode 2 meters and up. Maybe 5.7 GHz.

- **Marty Woll N6VI**
  - Marty has mobile station capability on 2, 3, 5 and 10 GHz which he used in a multi-operator entry in the June VHF Contest. Based on claimed scores, it appears that the group took 3rd place in the country, up from 5th last year.
  - He also reported that the ARRL Board of Directors is expected to approve new 5- and 10-GHz national band plans at its upcoming meeting, which he will attend.
  - He thanked SBMS and SCRRBA for the invaluable input to his UHF / Microwave Band Plan Committee.

- **Gary Hesten**
  announced that there will be no TV coverage next month.

- **Tom Board**
  was in Vale lasts month and watched us on internet TV.

- **Rein Smit**
  - Needs a list of activity Night participants. He is planning a single station control on 440 probably. Dennis said that Dave Glawson's 444.5 repeater may work for the coordination activitites.
  - Rein has been playing with PLL LNBs. He saw all 4 beacons with 18" dish. (See article below.)

- **Frank Kromann (our Guest from Trabuco Canyon)**
  - has a new US license but has made no contacts yet in the U.S. He lives in Trabuco Canyon and working on a synthesizer. Wants to do EME to Denmark.
  - He's currently working on replacing the LED display in his 10 GHz rig with an LCD version. He's also looking at replacing the LO to get a bit more stability and to add an external PA and a larger dish with a computer controlled rotor for EME.
  - He has a QSO scheduled in April 2015 where the moon is in an optimal position for contacts to northern Europe. That will most likely be with JT65 or CW.

(Kromann Cont.)

At the right Frank giving a short talk on his very professional rig. → (Rein Smit on the right.)

- **Jason Burbank**
  Didn't quite make getting the 10 Ghz rig together for the tune-up, but hoping planets align for the August contest weekend. The first day of the contest will be a divided effort, as its also the West Coast Military Radio Collector's Group field day at Ft. MacArthur in San Pedro. So in addition to 3 cm, he will also be running 6m and 75m on old green radios.

- **Mel Swanberg**
  - Did sweep testing of Dan's 24 GHz slot antenna.
  - Putting together 900 MHz radios to get people on the air on 900.
  - Has an idea for a 2.3 GHz repeater using surplus low band commercial radios for the IF, running at 45 MHz. If there is sufficient interest, a repeater will be built and put on the air.
  - He recommended (as did Dennis in the Tech Talk) that SBMS broaden its focus bandwidth wise. Not just 10 GHz and up contesting. And in addition, we should be making microwaves more accessible. He reminded us that 5.8 and 2.3 GHz equipment is cheap and plentiful.

- **Brian Thorson**
  got a 10 GHz LNA operational and studying tropo ducting.

- **Ken Bourne W6HK**
  is putting up a tower not appropriate for waveguide. 432 lossy

- **Charles Cooper**
  (new in May; N5RJK from Sarasota FL, now in Cerritos) is still relocating and has had no time for any microwave.

- **Dan Welch**
  still making parts for AMSAT. He has a small number of 10GHz antennas. The 24 GHz antennas are work in progress. So far -16 dB return loss.

- **Courtney**
  is a 432 listener. Was involved with a UHF contest with a new antenna. He has a 1296 transmitter not up to snuff though.

- **Chris Shoaff**
  is getting 10 GHz operational again.

Interesting SBMS Member of the Month

Ken Bourne, W6HK

Ken has been an SBMS member for several years. He is now the chief radio officer, Orange County RACES. He has been an electronics engineer for most of his career, retiring as president of R. F. Associates in 2006. He has worked on microwave projects beyond 10 GHz as an engineer and lately getting interested in microwave as a hobby. His first project will be 1.2 GHz rig and is planning on 10 GHz a few months later. He's interested in ATV but no plans yet. No experience with WSPR, but very interested.

In the picture above, Ken is preparing to install the winch cable. Running waveguide on a crank-up tower, he says, presents a real challenge. This is an important challenge for many SBMSers since activity night puts a premium on height. But you don't want to put your best rig up there if you also want to take it on field trips. Those members who want to offer a solution, should send your ideas to the Reflector:
sbms@ham-radio.com

He decided against putting a 432-MHz Yagi on the tower, for similar reasons. He will be portable-only on that band as well. He's considering building a deck over his patio, with stairs going up to it, on which he would mount tripods for microwave antenna experiments. He is especially intrigued by a comment about 2304 MHz made at the last meeting, regarding how signals bounce all over the place on that band.

Upcoming SBMS Meeting Tech Talks

- **September 5th SBMS meeting:** . Dennis Kidder: History of Receivers part 1
- **October 3rd SBMS meeting:** Jim Lux: Topic TBD
- **November 7th SBMS meeting:** Dennis Kidder: History of Receivers part 2

Rein Smit's Progress on the Use of Commercial Satellite Receivers and Inexpensive Dongles for Possible WSPR Applications

The first use of this project is to build a "scout" receiver with which I hope to find a microwave path to Larry and Pat who are located on the other side of the mountains. (Lake Los Angeles) A path, if it exists, will undoubtedly be with bouncing. (The ultimate goal is WSPR mode. –ed)

As front-end I use a PLL-LNB with a LO of 9.75 GHz generated from a 27 MHz x-tal. 10 GHz signals with the 9.75 GHz LO will generate a mixing product at 618 MHz. (This may sound expensive, but here's what Rein is talking about… --ed)

Avenger PLL321S-2 0.1 dB Universal Single Linear Ku Band Satellite Dish LNB

Lowest Price And Fast Shipping!!!

Item condition: New

Quantity: 1 More than 10 available / 122 sold

Price: US $10.44 Buy another

Add to cart

Best Offer: Make Offer

36 watchers Add to Watch list

USB DVB-T & RTL-SDR Realtek RTL2832U & R820T DVB-T Tuner Receiver MCX antenna

See original listing

Item condition: New

Ended: Jul 28, 2013 17:16:06 PDT

Winning bid: US $12.38 [27 bids]

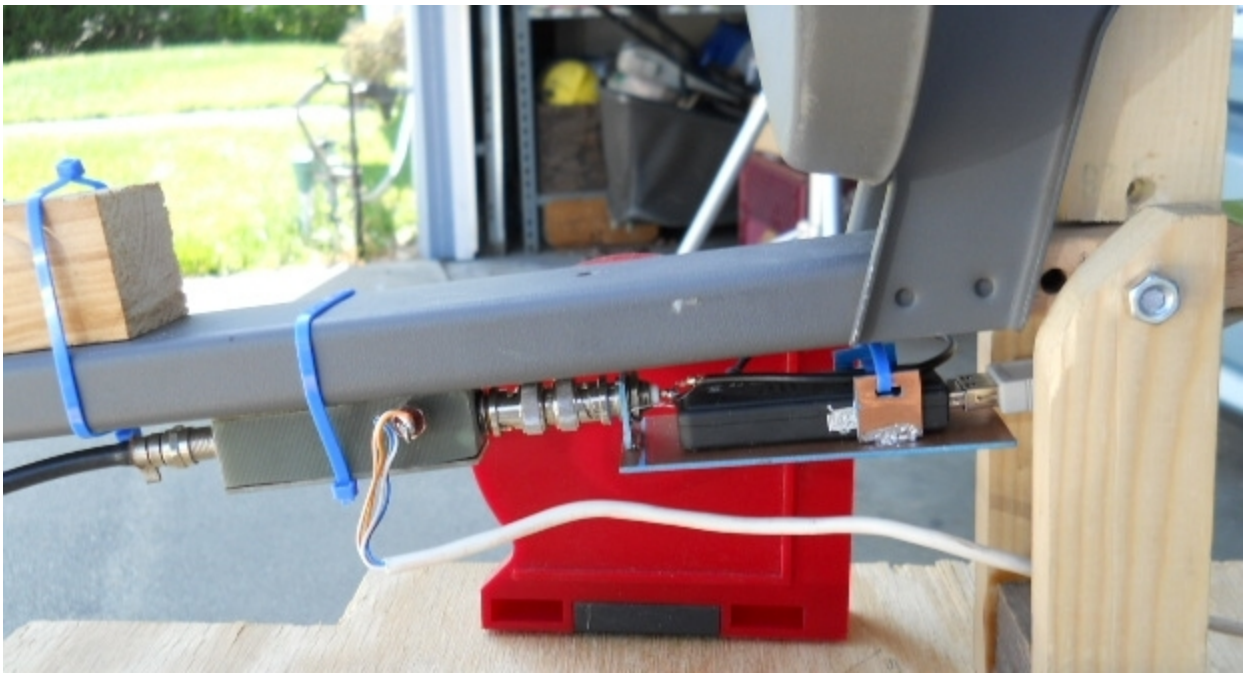
Shipping: FREE ePacket delivery from China

Item location: Beijing, China

Seller: laserlands (10476) me | Seller's other items

An "RTL_SDR" dongle is used as the IF receiver in this case. (Use the title in the pictures as key words in the eBay search engine. --ed)

No modifications were made to either unit except that the LNB needs a "Bias Tee" to feed 12 volts in the LNB's output.



Stability

Both units together are quite stable considering that the receive frequency is 10 GHz, but there is drift in particular when started. After about 3-4 minutes the drift has decreased to the point where that the combination becomes useable for what I want to: looking for a carrier or cw signal.

(The goal remember is WSPR mode which has frequency stability requirements in the single digit Hz and has never been achieved in the microwave; to my knowledge. For more on WSPR check this out: http://en.wikipedia.org/wiki/WSPR_%28amateur_radio_software%29 –ed)

After the 5 minutes the short term stability is quite acceptable such that CW and SSB signals could be copied but some manual following might be required. Not at a real disturbing level though. There are plenty of periods that the total stability is I estimate within 35 Hz; a level that is sufficient for some of the digital signal processing modes (for 1 minute transmissions).

What some amateurs have been doing is disabling the existing 27 MHz x-tal in the LNB and replacing it with a real stable 27 MHz source, whatever that may be. By doing so they may be able to use it on WSPR. [Can this be done in the mouth of the feed? --ed] One should not forget that the receive dongle also shows temperature related drift.

The Dish

I am using this unmodified PLL-LNB with 18" sat TV dish. There's a 3 dB change in noise when I raise the dish from ground to perhaps 40 degrees high.

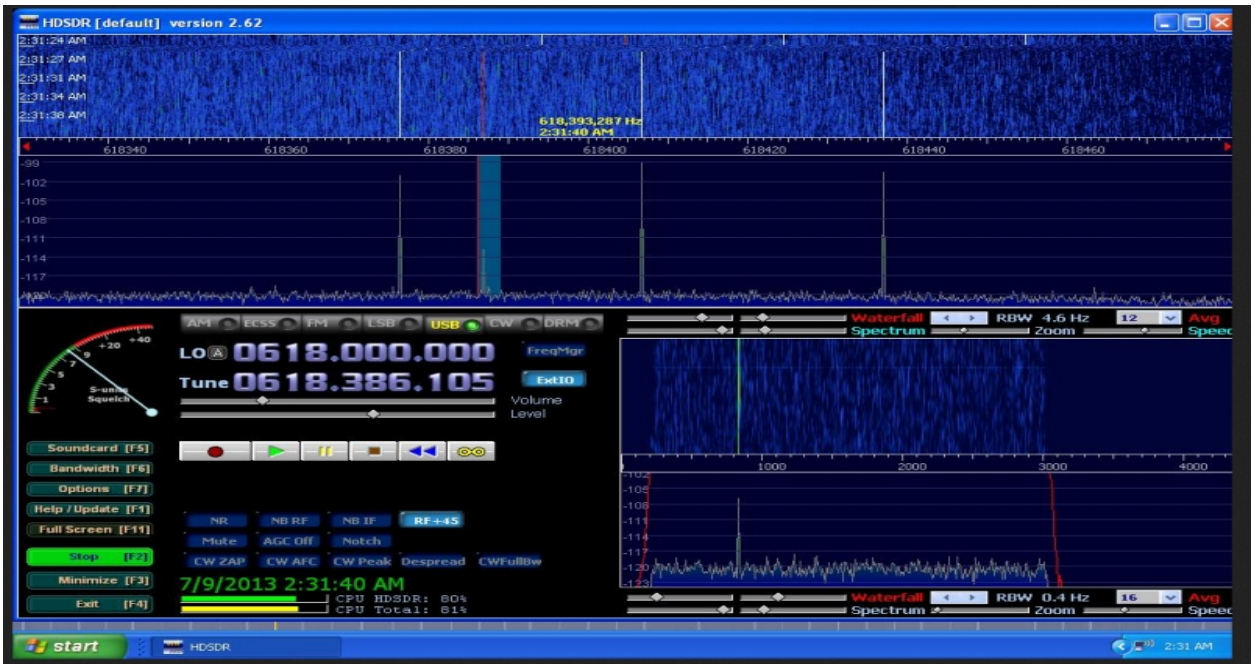
RTL Software

I favor HDSDR, http://www.hdsdr.de/

It will work with a laptop, (~ 2 GHz, 1 MB RAM) and for it to work with a RTL-dongle, it needs the .dll for that dongle in the same directory, see installation instructions.

Many hams like SDR#, http://sdrsharp.com/
It is slightly more user friendly and it has very excellent wide band FM demodulation. If you like to listen to better quality music on the FM band.

Results So Far



These are ALL bounced signals; Frazier perhaps 2 bounces…
Going from left to right:
first signal = Palos Verdes 10368.300
second = Frazier Park 10368.310
third = Santiago Pk 10368.330
fourth = San Diego 10368.360
Notice how straight these are. Earlier LNBs (without PPL) you could see the wiggles on the waterfall.

Activities in July

Tune Up Results

SDMG-SBMS2013

July 27, 2013 SDMG-SBMS EIRP/MDS Event						Range Feet	220			89	
10 GHz NB										Path Loss dB	
Call	Dish size "	Output dBm	ERP PM dBm	Atten. Value dB	MDS Gen dBm	Calc Ant Gain	Calc ERP dBm	Meas ERP	Meas-Calc		
N5BF	20.2	35	-11	20	-85	32	67	67	0		
N6EQ	24	35	-10	20	-82	33	68	68	0		
W6DQ	13Db	39	-23	0	-52	13	52	35	-17		
W6QIW	30	39	-12	30	-90	35	74	76	2		
N9RIN	30	38	-15	20	-72	35	73	63	-10		
AF6NA1	33	35	-6	20	-88	36	71	72	1		
AF6NA2	2ND LNA				-89						
AG6QV	18	23	-19	10	-70	31	54	49	-5		
WB6DNX1	17db	30	-18	10	-63	17	47	50	3		
WB6DNX2	13Db	30	-23	10	-59	13	43	45	2		
WB6NOA	24	31	-14	0	-65	33	64	44	-20		
KC6QHP	18	30	-5	10	-84	31	61	63	2		
N9RIN-2	36	36	-9	20	-80	37	73	69	-4		
N6MN	24	23			-54	33	56	58	2		
KB6CJZ	18	25	-14	10	-73	31	56	54	-2		
24 GHz NB										95	200
W6QIW	23	20	-18	30	-76	40	60	63	3		
47GHZ										102	200
K6JEY	12	2	-25	10	-84	40	42	43	1		
W6QIW	17	5	-9	20	-102	43	48	69	20		
79.8 GHZ										107	200
K6JEY	16	-10	-47	0	-45	48	38	36	-2		
NB frequency is 10368 MHz, IF is 144 MHz with 18 dB cable loss & amp gain of 46 dB											
NB frequency is 24192 MHz, IF is 147 MHz with 18 dB cable loss (used 44 dB preabmp this time)											
Ant gain Calc assumes 64% efficiency =7+20*LOG(size inches/12)+20*LOG(freq in GHz)											
Measured ERP = Power meter reading+Attenuator + Pathloss +Cable & Mixer loss-Amp & Horn gain											
Path Loss = -37.5+20*LOG(Dist in feet)+20*LOG(Freq MHz)											
Replaced FW brick with QC Synth on 10GHz unit 2010											

Pictures of the event will be published in next month's newsletter.

Tune Up Party

After the Tune-Up in Costa Mesa some of the guys got together at Dennis Kidder's for a Bar B Que. Here Wayne Yoshida is doing what he seems to have gotten quite famous for. That's Dennis, our host and the one that bought all the food. Fullerton ham Bill Preston is sitting and to the right in both pictures is Kurt K6RRA.

The event of the day was the reunion of two hams that worked together as doctors some 15 years ago. Dr. Sandy Slater, wife of Dan Slater and Dr. Helen Mahoney KI6LQV, wife of Doug Millar.

August 10 GHz and Up Contest

Date August 17 and 18, 2013. This is an ARRL sponsored contest.

- Details of the contest will be covered during the August SBMS meeting:

- Frequency assignments (10GHz) for various mountain/hill top locations.
- Repeaters that will be available for use during the contest and simplex frequencies to be used if a repeater cannot be accessed.
- Various personal items that should be with you during the contest in addition to your rigs.
- Locations of various members during the contest.
- List of locations, rig info and cell numbers to be compiled.
- Observations for Frazier mountain and traveling to Frazier to be presented.

For more on this event… 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”

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: 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

Want- noise source for NF meter, Bill McNally N6MN billmcn44@verizon.ne

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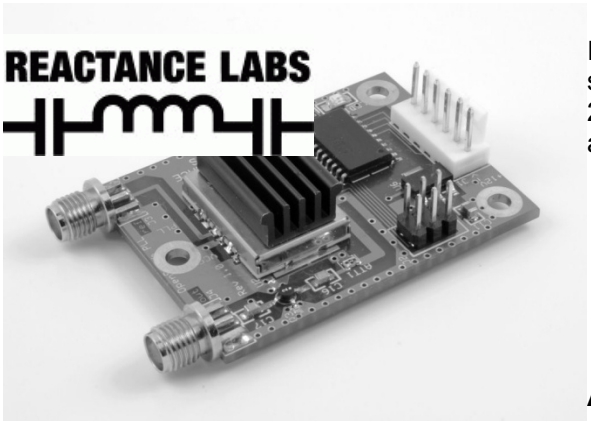
Member Ads

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.kl7uw.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.

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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