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 October 2013

Activities of the San Bernardino Microwave Society

Tech Talk for the October 3rd Meeting

The October, 2013 SBMS meeting will have a talk by Jim Lux, W6RMK, about FINDER, the microwave victim detection system developed by JPL for the Department of Homeland Security. Jim will talk about how FINDER works, some of the challenges faced in development and test, and other potential applications for the sensor. Jim Lux has been designing and building microwave radios (often software defined) at JPL for the last 15 years.

Important Points of the September Business Meeting

Old Business

- Doug talked about the reverse beacon being worked on by Tony. Tony is designing a kit for general use but will design one specifically for SBMS needs. We are to standby for an important announcement at the October meeting.
- Brian talked about loaner rig's and their use. His 10G rigs are designed around 432 MHz as the exciter/I-F frequency. If someone wanted to use his rig, they would have to bring their own FT-817 or another suitable 432 MHz low-power IF radio. (He wrote to the secretary later to explain that his choice of 432 MHz is different than many of the other SBMS members' rigs. Most use 144 MHz, and some use 28 MHz.) As it turns out, Courtney, N5BF, took him up on the offer and he made a good showing in the contest this year.

New Business

- Chris Shoaff, our president, wants someone to update our bylaws. Larry Johnston has a copy and will update them to reflect the current status of the club and make any corrections that are needed.
- Jeff Fort led a discussion on the IRS letter Dick Bremer received a few weeks ago. In 1982 the state suspended our corporate status. Something to do with our not being of benefit to the citizens.
- Mel requested people send to him their flight plans for the 2nd half of the 10 GHz and up contest.
- There was much discussion on a letter read by Dick Bremer from Bernardo, a good friend of SBMS in Mexico. He wants another 10 GHz radio and a beacon. (Secretary's note: Bernardo in Mexico is a pretty good investment for future interesting contacts.)
    - This letter began a very long discussion about beacon projects and a scolding from Mel on the lack of volunteers for these very worthy beacon projects.
    - It was pointed out that Tony has a kit and DB6NT has a kit (~$470)
    - Your secretary reminded the group that the beacon fund has plenty of money.
- The reading of the letter opened a very long discussion on SBMS beacons in general.
    - Doug Millar will talk to Benjamin EA3XU and Tony Long about how they put their beacons for 10 and 24GHz on the air with DB6NT parts.
    - Doug will check with Mel before the next meeting on the 24GHz beacon progress.
    - Walter reminded the group, yet again, of the purpose and the amount budgeted by the club for beacon construction.
- Regulatory Issue
  Marty gave us a heads-up on a Petition for Rule Making filed with the FCC by Mimosa Networks, Inc. seeking a Part 90 (Land Mobile Radio) allocation in our 10 GHz band. They propose to protect Amateur operations, but the effectiveness of such protection is questionable. (They also propose to avoid our weak-signal segment.) The FCC has not yet taken any action on this petition and may not do

so at all. [Here's a link to what Mimosa is proposing: http://apps.fcc.gov/ecfs/document/view?id=7022310834 It appears to not include the Part 15 X-band frequencies but will take over what they think the least used part of the amateur X-band allocation. The application seems to be the fixed broadband, --the 4Mbps-- market for rural areas which they think are presently underserved. The band was chosen because weather doesn't affect it. –ed.]

What Our Members Are Working On

Pat Coker N6RMJ
is getting ready for the 10GHz and up. His 24GHz rig went up in smoke

Rein Smit K6SZ
is using JT65C with his LNB and dongle, he made a few contacts including discovering a reflecting channel between mountains (one being Keller Peak) to hear and be heard by Chris Shoaff.

Jerry Mulchin N7EME
is very active in low end microwave repeaters; 800 MHz to 2.3 GHz. He's working with Mel on these things.

Mel Swanberg WA6JBD

- Brian Thorson (AF6NA) and Dr. Doug Roberts (WB6ALD) did a radiation safety evaluation using Mel's 30 watt 10 GHz rig. The point was to study where the safe regions are, not to evaluate Mel's safety. For example: 28 ft out, in the direct beam was 106% of the acceptable radiation. Behind the dish was about 1%.
- He worked with Jerry Mulchin (N7EME) on a 2.3 GHz repeater and is planning on using 45 MHz and 800 MHz commercial (super cheap) transceivers in the I-F.
- He reminded the club of how cheap 2.3 GHz comm gear is.

Jason Soyolow W6IEE
describes himself as a Linux nut.

- He brought ***RTL Touch*** (software to run a SDR radio in the form of a dongle). RTL Touch runs on the android phones/tablets.
- He ran it with Rein's X-band LNB rig later in the evening. His software was able to follow the instability of Walter's $6 DRO X-band oscillator where Rein's couldn't. The reason is that there's an option for WBFM whereas Rein's only has NBFM.
- He brought an up-converter to show us. It allows the little DTV dongles to work frequencies below 60 MHz.

- He also talked about acquiring Gqrx. [Gqrx is software but described as a receiver powered by GNU Radio and the Qt GUI toolkit. It looks at the dongle two outputs to process I/Q data. --ed]

Marty Woll N5VI
did the 1st weekend of the contest with a bigger dish than he's used to. He made 80 contacts with three of them over 500 km. He will be on Bald Mountain Sacramento later in the month. [Editor's note: Marty reported that the Sacramento trip was subsequently scrubbed because of the Mt. Diablo Fire]

Jeff Fort KN6VR
will be monitoring the liaison radio.

Walter Clark
brought an improved motion sensor that used the microwave oscillator part of a $6 motion sensor along with a $10 satellite dish LNB. The output of the LNB went to a Mattel speed gun for output in actual miles per hour. The LNB improved the range sensitivity by a factor of 25 over the use of the mixer that is part of the motion sensor.

Doug Millar K6JEY
- Gave greetings to SBMS from Bill McNally N6NM in Catalina
- Bought a new 5dB ENR noise source; that goes out to 18 GHz.
- He will be at Signal Hill for the contest.
- Went to Tony's to fix some RF problems on his DB6NT receiver.

Brian Thorson AF6NA
- Made 3 contacts on the ***"from home"*** Wednesday before the meeting
- Brian, of course was the key person in the radiation safety evaluation at Mel's.
- He was at Soledad with Courtney.
- Saturday he was out with Frank. Frank's rig fell on the concrete and broke his feed horn. He was able to fix it while there, thus avoiding the Flang Award.

Courtney Duncan N5BF (La Canada)
- Was involved in a UHF contest the first weekend in Aug. It was poorly attended.
- On 10 GHz he did some roving with Brian Thorson. Got 46 QSOs.
- He had fun working Pat Coker because Pat was so tough to work out in the hot desert. He didn't quite work Mel but heard the carrier from Potosi.
- On the "from home" Wednesday before the meeting, he worked two members and saw all four beacons

Dick Bremer WB6DNX (Brea)
and Robbie (of ATV fame) did the 10 Gig contest in Chino Hills. They worked 9 stations before Dick's radio stopped transmitting in the middle of working the Frazier group.

Frequency Stabilizing Satellite Dish LNBs

Two members, Dan Slater and Kerry Banke have done significant work in making these extremely cheap, extremely low noise devices work for the microwave amateur. To the left is a picture of what they are playing with.

There's so many out there to buy, instead of a link, go to eBay and enter key words: Ku Satellite LNB. The latest ones have a PLL and a crystal. They are five times more stable, (now 300 KHz) than earlier versions but that's still a long way from being able to do WSPR like stuff.

The trick of course is to stabilize it with an external atomic clock based oscillator. The first thing that comes to mind is inserting the L.O. from the front, but that means a 9 or 10 GHz that is rock stable. Kerry and Dan are trying to get into the circuit of the newer LNBs where there is a 27 MHz crystal at the front of the PLL loop.

Kerry is going in the hard way; opening up the LNB and connecting right to the crystal. Dan is trying to do it without opening the LNB; through the bias T that is normally power in and I-F out.

Dan has looked at the 27 MHz leakage coming out of the power-in-I-F-out connector on the LNB and found it to be fairly strong. He then made an unsuccessful attempt to lock two units together by simply connecting the IF ports in parallel to see if they would self-lock. One interesting observation is that you was easily able run multiple LNBs in parallel. He was able to simultaneously receive beacons from a pair of LNBs and select which beacon and LNB to receive by the frequency selection. The 4 beacons that he can receive from his house appear as 8 spectral lines. The next step which he has not yet done would be to inject a very strong and very stable 27 MHz signal into backwards up into the IF line to see if that would be sufficient to phase lock the LNBs. He said he still needs to track down a strong and stable 27 MHz oscillator, a suitable duplexer and some spare time! He said, Kerry's approach also looks very promising.

Kerry's approach is direct. His injected signal overrides that of the existing crystal without having to remove any traces. It's not too clear

from the picture, but the center conductor of the tiny coax touches a trace coming from the crystal.

Kerry explains: The PLL Ku-Band LNB being discussed recently works fine with an external reference of -10 to 0 dBm fed into one end of the 27MHz Xtal. If the reference is taken to about 27.5151 MHz, the IF output for a 10,368 MHz input will be 432 MHz. I have a few photos I took of the mod and a spectrum analyzer display of the unit externally locked showing a 618.000 MHz I-F signal for a 10,368 Mhz input [and 27.000 MHz reference –ed.)

As for the quality of the base oscillator, of course, the more stable the 27 MHz source, the better. I think the real warm-up drift is due to the xtal being right next to the voltage regulator which gets very warm. I think it mostly makes sense if you happen to have a synthesized sig gen or maybe one of the low cost Direct Digital Synthesis (DDS) generators available these days. I haven't really looked for a source of 27 MHz temperature controlled crystal oscillator but might do that for fun.

When the LNB is receiving the popular amateur frequency of 10,368 MHz, the actual L.O. beating with the incoming RF is as follows….

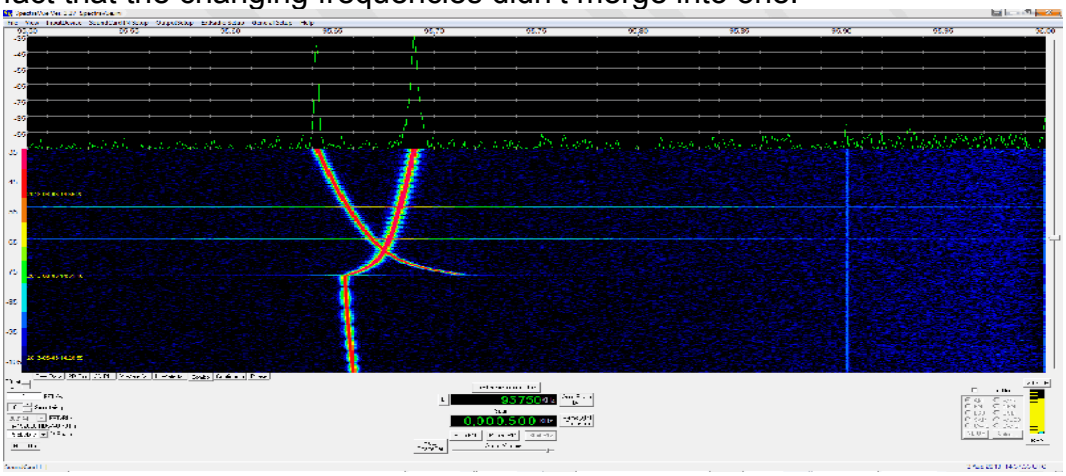
for 618 MHz: 27.000000 MHz X 361.1111 = 9750 MHz and

for 432 MHz: 27.515077 MHz X 361.1111 = 9936 MHz

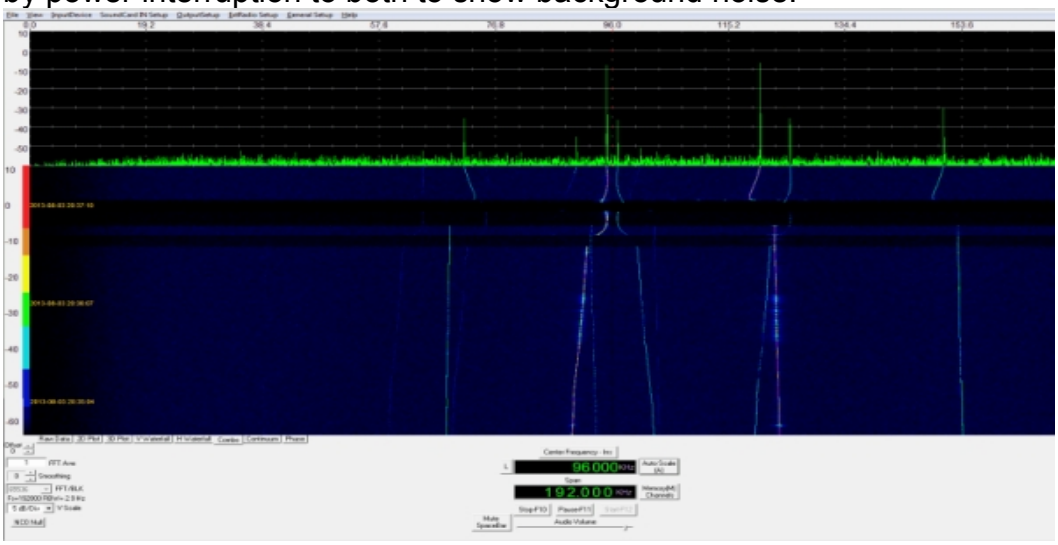
Kerry sent this link (in French) on similar work to his:

http://f1chf.free.fr/LNBPLL/inside.pdf

Dan Slater added the following:
If two or more LNB's can be phase locked, this will lead directly to various forms of interferometers and phased arrays. I did a solar interferometer a while back using a single Ku band LNB with a pair of dishes, waveguide plumbing and a magic T. This could be more readily done using IF signal combining with phase locked LNBs. With one of the LNBs moving relative to the other, this forms the start of aperture synthesis radio astronomy. If the 27 MHz phase lock signal phase is changed to different values for 2 or more physically separated LNBs, this leads to beam steering / active, electronically scanned antennas.
Here the frequency span is 500 Hz. There was no phase lock here as indicated by the fact that the changing frequencies didn't merge into one.



Below, both LNBs were pointed at the Santiago X-band beacon at 10368.330 MHz (– FCD + IF tuning to 618.500 MHz). Left and right LNBs were interrupted on purpose (by power cycling sequentially for 10 seconds to show which LNB was which.) Followed by power interruption to both to show background noise.



More on Affordable Microwave Receivers

Kerry did not describe what master oscillator he used to get the 27.5151 MHz but did mention the possibility of using a DDS. Here's Dennis Kidder's experience with a very affordable DDS...

"For those looking for an inexpensive DDS frequency source, check out this part on eBay:
http://www.ebay.com/itm/170783661135

At $4.48 with free shipping, it's cheaper than buying the Analog Devices AD9850 and building it yourself! You can easily control the DDS using an Arduino, a TI LaunchPad or similar PIC-based controller. I am currently using one of these boards to build a full-up DDS-based external VFO for QRP and boatanchor radios. There is a great deal of information on the Web about using the AD9850 and the great part about this board is that all the work is done already on the SMD parts! There are other AD9850 DDS boards available, but this one from this source is by far the least expensive. The DDS-60 from midnightdesignsolutions.com is a nice board, but is at the other end of the cost spectrum at $70.00. For all intents and purposes, the two boards are the same."

Part Two of the 10 GHz and Up Contest

Courtney's dramatic picture of Pat Coker at Secret Site 51. It looks Secret.

Also at Secret Site 51, Steve Miller W6QIW. On the right is "The Bar Stool" used by Courtney looking south from Blue Ridge. The Barstool, Courtney said is "Brian's loaner rig that I have borrowed for a while. It is providing me with valuable insight into how to build my own."

Wayne Overbeck's contact with two lady microwavers.

ARRL Photo http://www.arrl.org/contests

Carrie, W6TAI, and her sister Marie, W1TAI, were visiting from Boston. Wayne worked both of them on 24 GHz during the August UHF contest.

"We had a great time during the ARRL September VHF contest last weekend. I made about 400 QSOs on the microwave bands alone. Carrie, W6TAI, went on a DXpedition to Gaviota, CM94, to work the rovers on Signal Peak (Orange County) and also to work fixed stations. She worked everyone who was available on 10 bands: 50, 144, 222, 432, 902, 1296, 2304, 3456, 5760 and 10 GHz. She also worked me from two different grid squares on 24 GHz. She shot a video of one of the 24 GHz contacts and it's online at: www.socalcontestclub.org/24ghzvideo2.wmv"

Wayne Overbeck's September contest location.

Here are two photos of his portable setup for the September contest. He operated in the driveway of his still-vacant house in Panorama Heights, DM13cs. The first shows the tower trailer and antenna system as it appeared during the contest. The second was taken an hour later, when everything had

been packed up and towed away, leaving no hint that an amateur radio station had ever been there.

Brian to the Rescue…

This photo was taken by Courtney, N5BF. I had to give him a jump when his battery went dead. He was running something off the cigarette lighter and had inadequate battery to start the car after making several 10 GHz contacts in San Clemente. This was our 3rd roving stop.

SBMS Members get Radio-Active in ARRL VHF Contest

(This is for the VHF and up contest, not the 10 GHz and Up.) Marty Woll N6VI

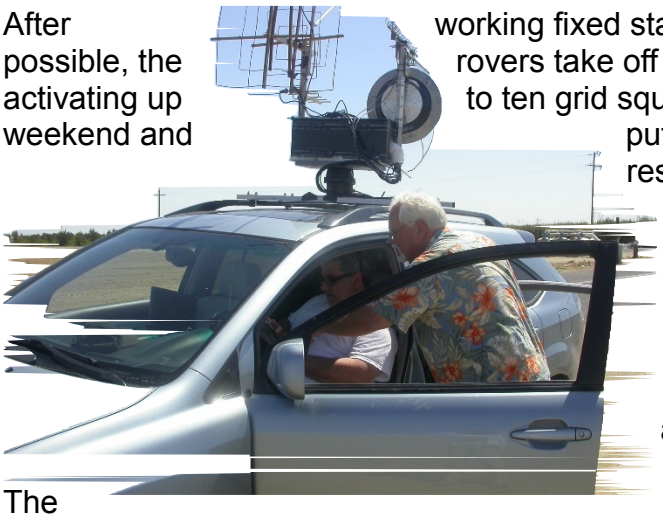
The weekend of September 14 and 15 brought out several SBMS members for the annual ARRL September VHF Contest. The two fixed stations most active in Southern California were manned by the team of Dave Smith W6TE and John Morrice K6MI, on Frazier Peak in the Los Padres National Forest, and by Wayne Overbeck N6NB, with his recently built tower trailer parked on Panorama Heights in Orange County. Dave and John entered in the multi-operator category, while Wayne entered as single-operator portable, a category that limits output power on any band to ten watts. Also

heard and worked on multiple bands were Courtney Duncan N5BF and Sunday afternoon weak-signal net hosts Steve Smith N8DEZ and Ralph Bergman K6TSK.

Roving stations, set up in personal vehicles from sedans to vans, provided multiple targets of opportunity for the fixed stations and for one another, adding to both the excitement and scoring potential of the contest. Marty Woll N6VI led a small pack of rovers that included Jim Forsyth AF6O, David Greenhut N6HD, Andre Hansen K6AH, Jim Curio K6FGV and Clara Woll KJ6CNO. Half this pack began the contest in Del Mar Heights and the other half started on Signal Peak above Newport Beach. Meanwhile, solo rover Carrie Tai W6TAI headed to the Santa Barbara area in order to set up in Gaviota. Each of the rover stations was equipped with ten bands from 50 MHz through 10 GHz, including antennas capable of contacts over hundreds of miles. Carrie also packed a 24 GHz set-up that could be deployed on a tripod.

Scoring in the ARRL's VHF and UHF contests is a product of contact points, with higher values for higher-frequency bands, times the number of Maidenhead Locator System grid squares, geographic blocks one degree high and two degrees wide, worked on each band. The bands from 2304 MHz up provide the highest contact point values, making SBMS members well suited to racking up very competitive scores and to contributing to the scores of other participants. Unlike the 10 GHZ & Up contest, raw distance is not a scoring factor in itself, but the ability to complete contacts over long distances increases the number of stations and grid squares that can be worked.

After working fixed stations and other rovers on every band possible, the rovers take off to one destination after another, typically activating up to ten grid squares over the course of the contest weekend and putting 700 miles or more on their respective odometers. Places where four grid squares converge, such as Bissell in the Antelope Valley and Kettleman City in the San Joaquin Valley, are especially popular stops. Once there, a rover can make contacts from one grid square and then move to another, re-aim the antennas and resume making contacts in a reasonably short time. The VHF Contest rules prohibit the use of repeaters or non-Amateur means of coordination.



All coordination must take place on the eligible contest bands themselves, so having a good station on the lower bands is especially important.

Marty N6VI added a lightweight Par Moxon antenna for six meters, which he mounted to the front hitch receiver of his SUV. It enabled him to complete contacts on that band that other rovers could not. He also decided to upgrade his very short yagis on 144, 222 and 432 MHz to longer end-mounted ones on six-foot booms. They proved their worth over some difficult paths, but the added mechanical stress eventually created a crack at one spot in the H-frame. He made it to the last scheduled stop of the weekend, but repairs will be needed before the next multi-band rove.

Marty also suffered a failure of the 1.2 GHz radio, but he had a backup plan that worked. In his bag of handheld radios was one for 1.2 GHz FM. Marty dug out an SMA-to-N patch cord, used it to hook the handheld to the coax coming from the roof-mounted loop yagi, and proceeded to complete contacts on 23 cm FM at his last three stops.

Once back in the Los Angeles area, Carrie W6TAI found street parking with a seemingly clear shot toward N6NB in Panorama Heights. With Wayne operating from indoors and aiming his tripod-mounted dish out the picture window, he and Carrie were able to complete a 24 GHz contact with ease. (See separate article submitted by Wayne.)

All involved considered the weekend a success, but overall activity from the general Ham population was low. Contest results are published and publicly available, and declining participation sends the wrong message to the world about the bands we are trying to protect. The number of licensed Amateurs in the U.S. is at an all-time high, with over half holding Technician Class licenses. Dual-band FM radios are ubiquitous, and many multi-mode HF transceivers have one to three VHF bands. If promoted actively, the SBMS outreach project introduced a few months ago by Dennis Kidder W6DQ, will enable more Southern California operators to get on the air on 1.2 GHz and higher. It's important that we all get on the air ourselves and set an example for those we are trying to encourage.
-- Marty Woll N6VI

Here's David Smith's W6TE Operation at Frazier

(This is for the VHF contest, not the 10 GHz and Up.)

John, K6MI, and I operated the ARRL VHF contest from Frazier Mt. Thanks to all who participated. The So Cal rovers contributed most of our contacts. Thanks to all of the dedicated VHFers and the rovers who turned out to make contacts and activate the bands! The participation in this contest was very, very low. This is very unfortunate. Our mountain top score was just above 150K. That's 50 MHz through 10 GHz. Thanks to all who participated and spent the time to operate.

Noise from Doug Millar

(could resist --ed)

Doug Millar K6JEY recently obtained a wide band noise source (DC to light). Normally these things are thousands of dollars, but he got his for a song. Here he is on Using a Microwave Noise Sources…

Recently it has been found that using a 5dB ENR noise source gives more accurate results in noise figure measurements. The reason is that many of the preamps these days have noise figures in the less than .3dB noise figure. In the noise source there is a diode that does the hot side of the hot/cold generation giving an excess noise level of 35dB. For a 15dB ENR source a 15dB attenuator is used in series internally with the output. Adding an extra 10db further isolates the diode from the preamp. Doing the latter makes the SWR between the diode and the preamp less of a factor in the measurement. At low noise figures even small amounts of SWR lowers the accuracy of

the measurement. Setting your Tcold correctly may make more of a difference, though. ENR is a simple ratio and is not referenced to any objective quantity like milliwatts. Of course one could place an external 10dB attenuator in front of the 15dB ENR source. However its accuracy has to be nearly .01dB. That might be pretty hard to verify. Without that accuracy, you might as well use your old 15dB ENR source.

In the case of noise figure measurement, we are nearly at the limits of what can be done for accuracy. Besides the myriad of external errors that enter into NF measurement, knowing the current calibration of the noise source and the current source temperature to within .1 degree is very difficult. Even the best set ups are not accurate to better than .2dB. In almost all other areas of measurement that we use like frequency, voltage, and RF we can be much more accurate. Here is a link to a perspective on where NF measurement is at this time: Go to the bactv link. . . http://www.rfdesignuk.com/downloads.html.

--Doug Millar K6JEY

SBMS Reflector Controversy

Some of you have been seeing your message on the reflector appear as a blank page. You have to remember to set your email program to text only. There is no warning. It just shows up blank. If you want to automatically go to text for SBMS but HTML for the rest of your communications, Rex A Allers KK6MK, San Jose, wrote a procedure for us. It is for Thunderbird but will be of some help for other programs. Here it in a nutshell:

- Select Tools
- then Options
- then click 'Composition' at the top of the Options box.
- Make sure you have the "General" tab selected
- Near the bottom, in the options box, click the button for 'Send Options...'
- In the top of Send Options box select 'Ask me what to do', then you should get prompted if there is confusion about the format as you send.
- More important, in the bottom half of Send Options box, click on the 'Plain Text Domains' tab and then use the add button to add the domain of any addresses you send to that may have problems unless you send in plain text. I have these three mail list domains added on my T-bird:
  altadena.net
  ham-radio.com
  lists-electechs.com

Now any emails you send to email addresses in those domains should be sent as plain text only (no html). For an illustrated guide of the above, go to Rex's website: http://www.xertech.net/reflector_email.html

Tech Talk for the September Meeting

The talk was going to be on Walter Clark's $20 DRO version of the old Gunnplexer. At the end of the talk Walter and Rein were going to test the compatibility of using just the transmitter part of the DRO motion sensor with Rein Smit's dongle and satellite dish LNB. In the interest of time, only this last part of his talk was given. It was expected that it would be a challenge with regard to stability since in the motion sensor application, there's no need for stability. It was very difficult for Rein's NBFM software to follow the signal's wandering. Jason used RTL Touch (which has WBFM) on his tablet and was able to track the signal for a while. The frequency stability of the DRO motion sensor is clearly unacceptable. (The reason that DRO when used as a DROplexer was able to work was because it used a very cheap receiver that relied on a very wide AFC circuit to solve its own stability problems.) It's too bad the DRO-transmitter didn't work, because the DRO motion sensor as a source would have been a very affordable transmitter side of a beginner microwave rig. The DRO along with the satellite dish LNB/DTV-dongle receiver are both mass produced hence very affordable. The conclusion is that for introducing new hams to microwave, there is still a great need for a cheap microwave source. A "stable" cheap microwave source.

Upcoming SBMS Meeting Tech Talks

- **November 7th SBMS meeting:** Dennis Kidder: History of Receivers part 1
- **Dec.** Doug, Tony, Bill, Steve: 79 & 122 GHz Radio symposium and demo.
- **Jan.** Dennis Kidder: History of Receivers part 2
- **Feb.** Marty Woll: Contesting techniques.

For information on other events… see “Activities” in the SBMS website, which, you should have 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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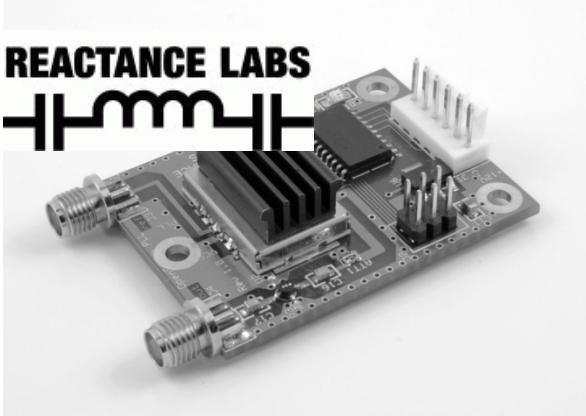
Member Ads

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

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.

About the San Bernardino Microwave Society (SBMS)

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Microwave Challenge of the Month

On page 6 above, Dan Slater mentioned some exciting applications if you could phase lock the L.O.s of two LNBs.

If Carrie and Marie Tai shared the same L.O. as well as the same DNA, would they get exactly 3dB more gain, or because of the spacing, more than 3dB? What else would they have to do to pick up that extra amount? What if they ran separate L.O.s but exactly the same frequency?

Submit your ideas for them to try, to the SBMS reflector.