SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1955

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

W6IFE Newsletter

September 2012 Edition

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At the **September 6, 2012 SBMS meeting** will have Dennis, W6DQ talk about his prototype 10 GHz handheld transceiver. The SBMS meets at the American Legion Hall 1024 Main Street (south of the 91 freeway) in Corona, CA at 1900 hours local time on the first Thursday of each month.

Last meeting- Chris, N9RIN talked about his measurements on a feed antenna. The main discussion was where everyone was going during the 10 GHz contest. Visitors were Art Sutorus, AA6CA of Norco and Steve Smith, N8DEZ of Sylmar. It was proposed that SBMS buy some tables for the American Legion since some of theirs were broken. It was mentioned that Paul Lieb KH6HME (SK) was the one of the last of the charter members of SBMS. 23 people present.

Scheduling:
September 8-10 ARRL September VHF QSO Party
September 15-16 ARRL 10 GHz and Up Contest part 2
October 6-7 2.3GHz and Up ARRL International EME Competition
October 18-21 Microwave Update 2012 in Santa Clara Biltmore Hotel
November 3-4 50 and 1296 MHz ARRL International EME Competition.
December 1-2 50 and 1296 MHz ARRL International EME Competition

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
For Sale: HP. 8441a preselector
HP. 3325b gen

HP. 3586c sel. level meter (vlf rec.)
HP. 436 435 power meters
Wiltron 2 ea. net. Analyzer. With one sensor
Efrmtam rubidium standard rack mount 10 5 1 .01 MHz.
10 GHz. horns
40 GHz. horn wr-28
Wiltron sweep gen. 6737b 2 to 20 GHz.
Marconi 2031 10 KHz. to 2.7 GHz. with all options
EPI 548a and 548B counters to 26 GHz.
email or call 818 610 9932 with offers Larry. lnmbolster [lnmbolster@earthlink.net]

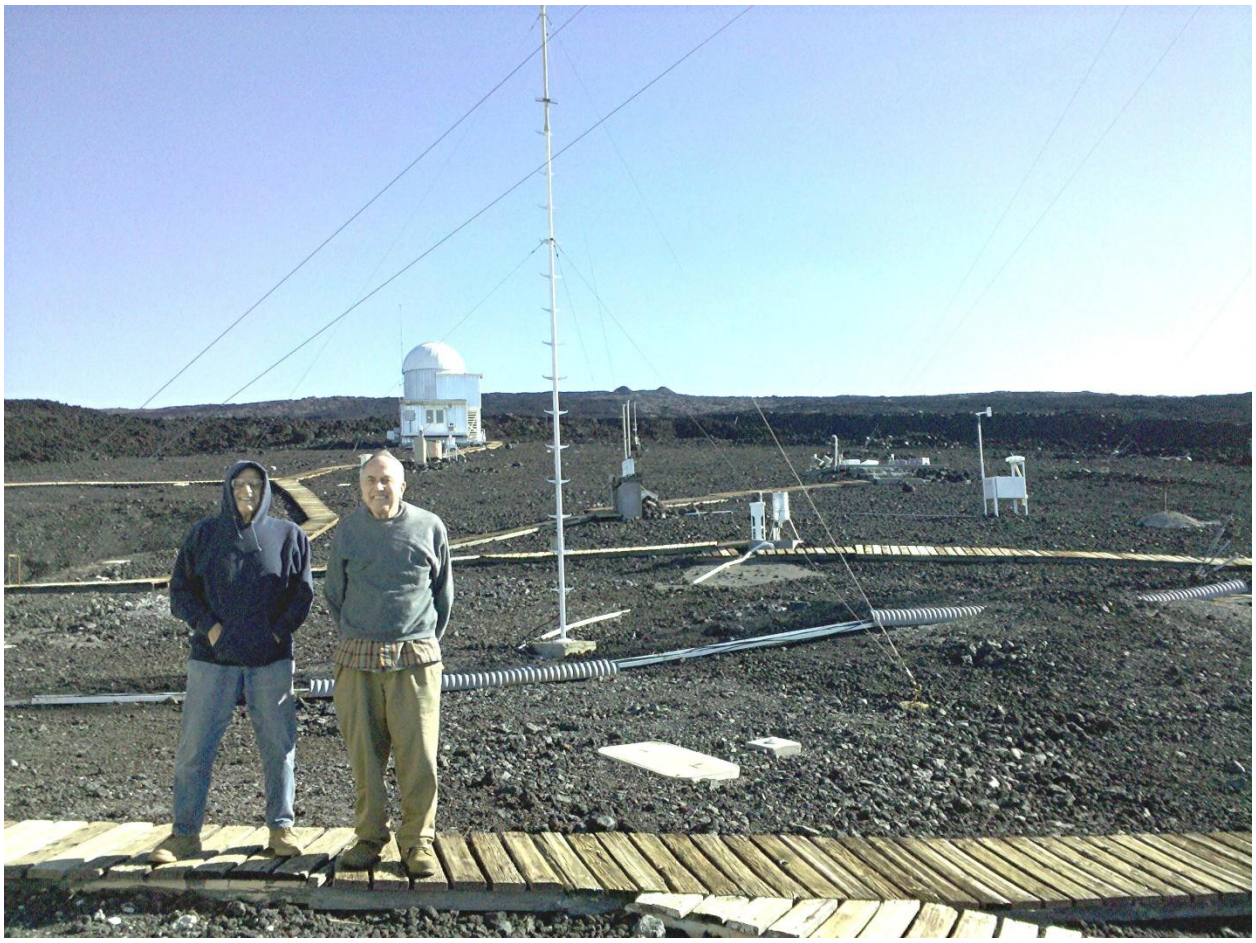
Free-I have a collection of the Qualcomm synthesizer boards etc. available for 10 GHz use, for free (pickup in Tucson -no shipping). Also FREE-- some 6 GHz Alcatel MDR6000 cell site pieces including power converters, OCXO's and linear amplifiers which will put out at least 1 watt in the ham band (no shipping either). This Class-A amps are broadband, and will need significant heat sinks. . Steve Bell Tucson 520 297 1282
Wanted- WR42 to SMA transition Chris. cshoaff@yahoo.com
For Sale- 2 MACOM 10 GHz Gunnplexers with horn antennas, one Whitehouse transceiver, documentation $40 Bill WA6QYR bburns@mediacombb.net 760-375-8566
For Sale: Here is a list of power meters available:
Rohde and Schwarz NAP- with 1100 watt head. Calibrated up to 1296MHZ with, new batteries, rubber cover, cord and manual in English or German. With spare NAP meter unit, no batteries. Deluxe unit with spares in calibration- $1000 excellent condition.
HP Power meter setup. 1mw to 25watts, 1-18GHz. HP 8481B sensor and attenuator and 438 power meter. All functioning as it should. $850. 438manual incl.
Rohde and Schwarz NAUS. Calibrated up to 1296MHZ-300w multi range power meter 30-1000mhz. Think of an HP432 with two meters and a high power sensor. $200
Heathkit IM 4190 three range 300 watt meter. Calibrated up to 1296MHz $150
I have a very nice condition mixer for 47GHz. (33-50GHz) HP 11970Q. Round flange in nice shape. It is set for separate IF and LO inputs, but could be used with a Tek analyzer without the duplexer. Calibration data is on the back taken every 500MHz. $300 plus shipping from Long Beach, CA 90806 Doug K6JEY
All prices are plus shipping from Long Beach Ca. 90806 Doug K6JEY drzarkof56@yahoo.com.

Activity reports – Dick, WB6DNX is rebuilding his 10 GHz rig; Chuck WA6EXV has the Heaps beacon ready to go (beacon died again); Ed, W6OYJ had set up his 10 and 24 GHz rigs in the backyard and tested them in ready for turn up party; Walt went to the Maker Faire; Dennis, W6DQ, will work from home during the contest, the 10 GHz HT is still in work; Courtney, N5BF did some cable work and 1296 MHz rig work; David, K6VML studying for extra; John, KJ6HZ has a new dish and worked with his fun dongle; Marty N6VI reworked his 2-10 GHz boxes; Steve, N8DEZ visitor is a VHF guy; Robin, WA6CDR is looking for his 10 GHz rig in garage; Mal, WA6JBD did some work on 5 GHz radios; Jeff, KN6VR did some work on a weak signal source for 1296 MHz; Larry, K6HLH has a new shoulder joint; Pat, N6RMJ has his 10/24 GHz rig working; Brian, AF6NA has new 10 GHz rig and measured the sidelobes at 10 dB down; Chris, N9RIN found a lens antenna at TRW swap meet. ATV check in was Don, K6BXT.
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. I am not carrying any inventory so this allows shipping time to obtain kits and any other materials, and time to test the finished product plus ship to the customer. At this time I am limiting this to the VHF/UHF 25w Transceiver kits. In a couple months I hope to add three amplifier kits from Communications Concepts, Inc. If there is a something special you want assembled contact me. My professional credentials are at: http://www.kl7uw.com/60NE.htm Ed Cole

Bill-
About two years ago Chuck and I went to Hawaii to visit Paul Lieb. While there I took the following pictures, as well as others. I don't know what is planned for the SBMS Newsletter and website, so I am sending these to be used

if desired. When you figure Paul was the co-holder of every DX record from 144 to 5760, his work was a benchmark in Amateur Radio. And- let us not forget the majority of his records will probably NEVER be broken.

Paul Lieb (KH6HME SK) checking out the 600GHz LNA used at the sub millimeter antennas,
Smithsonian Astrophysical Observatory, Mauna Kea, (Big Island) Hawaii.
Notice static strap on Paul's left wrist, the LNA is valued at $300K.



Paul Lieb and Chuck Swedblom (WA6EXV) doing an impromptu on-site 'inspection' of various RF experiments atop 11,150' Mauna Loa, (Big Island) Hawaii. Greg Bailey.

The latest news is that some of the Hawaii hams are going to keep the beacons running and operate the stations as required. More on this as news becomes available.

Steve Powlishen, who died yesterday (just two months after he turned 60), was not only an exceptional engineer and builder of potent RF amplifiers--he was also a premier VHF contester of the 1970s and 1980s.

Steve, K1FO (WA1FFO until 1977), built a super- station in Connecticut and became the odds-on favorite to be the top single operator in any VHF contest, just as K1TEO is the odds-on favorite today. I got to know him well because I also wanted to win VHF contests--and concluded that I had to have a good station in the northeast to have any chance against Steve.

I flew to Boston for the September, 1978, VHF contest, hauling seven suitcases of equipment.
I rented a car, built a console inside, and parked on Mt. Equinox, Vermont. K1FO was well aware of this--and redoubled his own efforts so he could teach this California carpetbagger a lesson. And he did. Steve amassed the highest single-op score ever in the September VHF contest, and did indeed

send me to the departure gates at Logan Airport vowing to try harder next time.

The next year I outfitted a Ford van with kilowatts on all bands through 432, added an Onan generator and mounted a tower on the rear deck. I drove east in 1979, towing a 70'
tower trailer behind the van so I could have two towers on an eastern mountaintop for VHF contests.

Meanwhile, Steve built a killer home station.
He was ready when I set up on Mt. Equinox for September, 1979 for a showdown in what was becoming a rivalry.

The record books say September, 1979, saw some of the best tropo conditions ever in a VHF contest. Steve and I both worked all the way from New England to Oklahoma on the VHF bands, working tropo DX on 2, 220 and 432 that Californians can only dream about.

Steve's previous record for September was 45,000 points (scores were much lower in those days because ARRL sections, not grid squares, were the multipliers--and roving had not been invented yet). We both shattered that record. I edged Steve out with almost 103,000 points, a September score that was never exceeded under the section multiplier scoring system. But Steve was destined to have the final word in the June contest.

The rivalry continued for a few more contests, and then I abandoned these coast-to-coast VHF expeditions and tried to get serious about my career. The next year, Steve went all-out in the June VHF contest and scored almost 110,000 points--the highest June score ever posted when ARRL sections were multipliers. Then he, too, decided to concentrate on his career--and became legendary in his field.

It's very hard for me to accept that the guy I remember as a young kid in a red Ford Torino is gone forever. Like thousands of others, I will miss him.

-Wayne Overbeck, N6NB

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Microwavers--

Aaaarrrghhh! My Thunderbolt GPS died.

I have the version with the built-in power supply that requires only a +24 input.
The power supply is putting out +12, -12 and +5.
At least I see these voltages on the upper board on the pins of the 6-pin connector that supplies power to the main board.
What puzzles me is that the main board acts as if it is not getting *any* power; the OCXO stays cold and none of the multi-pin chips on the main board seem to be getting any power as they do not show any sign of getting even the Slightest bit warm. The main board is a multi-
Layer PC board which makes it nearly impossible to trace how the power supply voltages get to anywhere on the board.
Fortunately, I have a back-up T-bolt I picked up on flea-bay and it works... at least it puts out 10 MHz and clock pulses.
What is the correct procedure for setting up a

T-bolt for best performance? I powered it up and
told it to do a survey. Two displays came up; one that plots fixes on a horizontal and vertical axis in different colors and one that shows the tracks of all the birds passing overhead.
However-- all of the color dots showing fix points are way off at the top of the little display box.
After doing fixes for a few hours it appears that most of the fixes are off screen outside the upper side of the display.
It appears that I have not gone through the correct procedure to do the proper set-up to put the T-bolt into service at a new location.
Any suggestions on the proper sequence of commands?
Thanks!!
Mike Baker WA4HFR
Gainesville/Micanopy, Florida USA

Microwavers--The question was asked, "What is a T-bolt?"
YIKES!! I posted my question about the initial set-up procedure for the Trimble Thunderbolt GPS disciplined oscillator on this Microwave list because I thought that just about everyone involved with microwave activity would have one for their primary frequency reference
for all of their gear. I externally phase-lock all my gear
(spec-an, freq-counters, LO's and anything that needs to
accurately generate, read-out or measure frequency.
I got my T-bolt 3 or 4 years ago, set-it up and gen-locked all my gear to it but have forgotten what the exact procedure is, thus my question to the list.
Surplus T-bolts typically go for under $200 on flea-bay.
Get one, set it up with a good GPS antenna, and let it do a survey for 24 hours till its 10 MHz reference output settles down to around 2 X E-12 and you are good-to-go.
I can measure frequencies up to our 10 GHz band to within +/- a few Hz.
That's Hz, not KHz!
I am also a long-time member of the Time-Nuts chat-list where I posted the same question but have not heard back from that list yet.
Thanks for any input on this!!
Mike Baker, WA4HFR
Hi Al et al,
I went to eBay and found the device and was impressed. It is a GPS receiver that puts out a 10 MHz signal in addition to the 1 pps signal.
 Unfortunately the "brand new" price is a bit high but I am surprised that someone hasn't come up with something similar for the Ham contingent.
 73, Jerry W7QX
Many hams have. The classic design was in the July, 1998 QST article by Brooks Shera, W5OJM. There have been many others since then, many very easy and cheap to duplicate. Do a Google search for 'gps disciplined oscillator'.
73, Tom WB6UZZ
Microwavers--Trimble T-bolts often show up on flea-bay for under
$150. Pay no attention to flea-bay postings for
anything over $150. There is a current posting
running now for $150 and they say that they have more than 10 available. You will need a $20 power supply that puts out +12, -12 and +5.
You can download the Trimble factory software program to control and display the T-bolt functions but a vastly better control & display program called "Lady Heather" can be had here:
http://www.ke5fx.com/heather/readme.htm
--along with a BUNCH of good info on the T-bolt.
Clever icon, doncha think!?

If you have any desire to have a frequency reference that is only slightly less accurate than a cesium maser,
this is the way to go. My T-bolt typically hovers around
2 X E-12. Is that good enough for you...??
Someone gave me an ancient Windows-95 laptop which has been sitting on a shelf in my workshop displaying Lady Heather 24/7 for the last 4 years.
Crappy old laptops replaced by a newer and fancier
one are everywhere for under $50. Get one, run
Lady Heather with it and you are good-to-go.
I use a video distribution amplifier to feed the several items in my workshop that use the 10MHz reference from the T-bolt to phase-lock with.
Mike Baker

Michael, Very informative. I am running an eBay surplus OCXO ($45) 5xE-12 as my reference which requires +12v and 5v and no sw.
But I wonder about the application for remote/portable operation with a T-bolt. Do you need to have them running for a long time to achieve 2xE-12?
That would require having the T-bolt powered while enroute to a portable location. The OCXO tames down in less than 30-min (about 5-min for initial heating).
I have two of the old Jupiter GPS units which I have held onto for portable use. 73, Ed - KL7UW

Hello, Ed-- Yes, T-bolts do seem to need to run for a day or so to
settle down. A lot of folks are using their T-bolts
to discipline a rubidium "atomic" oscillator. This gives you the best of both worlds: exactly ZERO long-term drift over periods of years, and the incredible short-term accuracy of a rubidium frequency reference. Rb references warm up and meet factory specs in 30 minutes or so.

Or-- simply use a stand-alone rubidium reference that is not disciplined by a T-bolt for your portable reference...
You can check it periodically against a T-bolt that has been allowed to do a proper survey and settle down to their typical 2 X E-12.
EFRATOM LPRO-101 Rubidium 10MHZ 10MHz
frequency standards show up on flea-bay for $50
to $90. I have several of them which I re-zero
periodically to my T-bolt. Rb oscillators typically
have a frequency drift aging rate of better than
+/- 5E X E-11 per month and +/- 5 X E-10 per year and
meet this spec after only 30 minutes of warm-up.
Only the best, really expensive TCXO units can begin to match or exceed a long term stability of +/- 5 X E-7 per year.
Mike Baker WA4HFR

Congratulations to: AF6NA 10 GHz; W6QIW 24 GHz and KC6QHP 47 GHz for best performance in the Tune- Up Party. Each one had near zero results on their rigs where as others were several dB down. Results can be found on the SD portion of the SBMS web site. Thanks to Kerri N6IZW and Ed, W6OYJ for running the tune up party.

To; Larry, K6HLH and Pat, N6RMJ on their winning entry for the SBMS 2.0 GHz and Up contest for the SBMS club. No other entries were received.

Chuck, WA6EXV looks on as Ed, W6OYJ shows off his SDR dongle software at the July SBMS meeting. The San Bernardino Microwave Society is a technical amateur radio club affiliated with the ARRL having a membership of over 90 amateurs from Hawaii and Alaska to the east coast and beyond. Dues are $15 per year, which includes a badge and monthly newsletter. Your mail label indicates your call followed by when your dues are due. Dues can be sent to the treasurer as listed in the banner on the front page. If you have material you would like in the newsletter, please send it to Bill, WA6QYR at 247 Rebel Road Ridgecrest, CA 93555 **or, bburns@mediacombb.net, or** phone 760-375-8566. The newsletter is generated about the 15th of the month and put into the mail at least the week prior to the meeting. This is your newsletter. SBMS Newsletter material can be copied as long as SBMS is identified as source.

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