



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

February 2008 Edition

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At the **7 February 2008 SBMS** meeting will be Dick, K6HIJ on the fundamentals of noise and measurements. 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. Check out the SBMS web site at <http://www.ham-radio.com/sbms/>.

REMINDER- NO PARKING IN THE CHURCH LOT UNTIL CLAIRIFICATION IS MADE.

My father, Howard Bogen, WA6YGB, is a member of the San Bernardino Microwave Society. He recently passed away and I wanted to let you know just in case any of your members might have known him personally. I know that he dearly loved his monthly Thursday meetings out in Riverside and I also know that he would not want your group to continue to waste postage on sending him mailings after his death so please remove him from your lists. Thank you Lisa Goodrich (Daughter)

Dear Lisa, I am deeply sorry to hear of Howard's death. I very much enjoyed getting to know him the last few years and hearing about the progress on his radio projects each month. He will be greatly missed. I will be sure to pass this information along to our membership and newsletter coordinators and tell the group at our next meeting. I believe he was also active in the weekly net on the 1296 MHz band and will ask our members to notify the people on that as well. Please let us know if we can be of any further assistance to you in this difficult time.
Sincerely, John Oppen President, San Bernardino Microwave Society

Last meeting- Dennis, W6DQ gave a super talk on Time and Frequency". Welcome to new members Jack Dickinson N6PI of Santa Barbara; Jacob Portukalian KD5FEG of Alhambra; Stan Slonkosky KE6ZC of Pasadena; Norman Dickhoff KI6HLB of Hacienda Heights; Ronald Phillips AE6QU of Sun City AZ; Richard Gill, KQ6EF of Bakersfield, CA. Dick, K6HIJ, Chris, N9RIN and Jerry, N7EME are working on a 3456 MHz transverter kit that the membership could build.

Scheduling

Mar 6 TBD

“Wants and Gots for sale”.

Want: Four-pin Cinch-Jones socket (F) with back shell for cable. John Oppen KJ6HZ 951-288-1207

Field Activity Reported

Steve, W6QIW and I went out to test Steve's new 24ghz radio during the holidays. On Christmas Eve I stopped on my way to the relative's house in Camarillo on the Conejo Grade at the weigh station using two meters for liaison. Steve was set up on the road above the courthouse in Ventura about 20 miles away. Steve was already set up when I stopped and got my rig out. Immediately we heard each other and proceeded to line up the dishes. We were both full scale to each other and Steve logged his first QSO on 24ghz. After that we met in Camarillo to exchange QSL cards and talk about it. Helen also worked Steve from Camarillo. Attached is a picture with our rigs set up in Camarillo and us chatting.73, Doug K6JEY

On Saturday January 19th, from Mt Soledad DM12ju, I used a modified Pcom with about 100 mW and 24 inch Pcom dish, and worked the following stations on 24 GHz narrowband:

K6JEY, Signal Hill DM03WT, SSB mode, Doug's signal 5x9+, dx 135 km

W6QIW, Secret Site 51 DM04TL, cw mode, Steve's signal 549, dx 200 km

N6RMJ, Huntington Beach DM03XQ, SSB mode, Pat's signal 5x9+, dx 117 km

KC6QHP, Signal Hill DM03WT, cw mode, Tony's signal 549, dx 135 km

Then my cw key fell and yanked its connector off, so I was no longer able to provide a carrier for dish aiming. As I was leaving Mt Soledad I discovered N6TEB operating about 100 yards east of my earlier location with gear for 5, 10 and 24 GHz, and many uhf/vhf bands. 73s and Thanks to all those who were active that day. Ed, W6OYJ

I ended up going to Signal Hill rather than Signal Peak on Saturday morning. I worked 4 stations, Doug K6JEY, Pat N6RMJ (in Huntington Beach), Steve W6QIW (at SS51), and Ed W6OYJ on Mt. Soledad in San Diego. Conditions seemed optimal for 24 GHz; the air was dry, temperatures low, and clear skies for miles. These were the first contacts for me using my new 1-foot MA/COM dish on my TRW-based 24 GHz radio.

I learned a few things from this event that require further effort.

1. My antenna is too sharp to not use a compass rose
2. I need to look at my receiver
3. I need to replace my IF rig.

At 10 GHz, my 18-inch dish gives a fairly wide beam pattern by comparison and I can get away with just pointing it around and scanning. This 1-foot dish at 24 GHz is considerably narrower and the use of a compass rose is basically mandatory. It reminded me of my 47 GHz setup actually. My transmitter seems to be working fine, and everyone was able to hear me well, but I didn't seem to be receiving as well as I should. I'm thinking that it has to do with the 0/90 degree hybrid that comes after my receive mixer not being rated for the high 1st IF that I am using. In any case a check of receive noise figure, and transmit power are in order. My IF rig is an old Santec handheld that uses thumbwheels for the frequency input. As a consequence, it's very hard to scan around the band with this radio. Since my 24 GHz radio does not use an external 10 MHz reference, I am bound to be off frequency a bit, so scanning around is necessary. I think an FT-817 is in my future. Thanks again to all those who came out to work the 1.2 cm band. - Tony KC6QHP

Activity reported at the January meeting—. Dan W6DFW Cactus work; Larry, K6HLH has his 10 GHz home station up and working again; Joonho, KG6MQS had his 24 GHz rig construction to show; Dick, K6HIJ is working on a 47 GHz test bench and has some YIG oscillators that he would like to convert into a plug-in oscillator for the 8690 sweep generator; Jerry, N7EME has an LO, loop and microprocessor in the works for the 3456 MHz project, he will be having a new low phase noise fixed frequency source for his business; Paul, KH6HME is on the mainland for his annual visit and reported poor propagation over the Pacific for contacts; Rein, W6SZ went on the OVRO tour in December; Stan, KE6ZC went on the OCRO trip too; Pat, N6RMJ did some testing at the lab; Dick WB6JDH is looking for 10 GHz rain scatter; Norm, KI6HLD is looking to start building gear; Gene, K6BNN is looking for info de-spiking his FT100D IF radio; Ara N6ARA is a student at Cal Tech looking for experience on microwaves, Chris, N9RIN found a 6 GHz radio at TRW swap meet and is working on his Endwave 24 GHz rig; Dennis had a good time at the SBMS Christmas party at his QTH; Bill, WA6QYR has been trying to fix the local Ridgcrest inter-tie; Chuck, WA6EXV has the 10 GHz power amp built for 80-100 watts and now to test it and is building a beacon for .24, 3.4, 5.6 and 10 GHz for the IWV area, and is building a 24 GHz 16 slot thin wall WR42 guide omni antenna; Dick, WB6DNX is building a 24 GH beacon; KJ6HZ had 17 days off work but didn't get anything done; Dick,

K6HIJ and Jeff KN6VR are working on a W2IMU feed for the "new" 1 meter dishes; There were 3 check-ins on the ATV network

Email Threads

I purchased my 2.4 GHz 4 way power divider from Directive Systems. www.directiveystems.com
They make power dividers (2 way/4way) from 130 MHz to 3.6 GHz. Also the ARRL UHF/Microwave Experimenter's Manual (Antennas, Components and Design) has a good straightforward homebrew power divider construction guide on page 9-16. This is the third microwave book of the series and it was a picture of waveguide on the cover. If you don't have this book, I can send you a copy of the pages pertaining to this subject. GL Mike K9QHO

I believe the info for using "N" fittings on 432 and 1296 can be found in the 1999 M.U.D. proceedings. It was Technical report #10 from the Crawford Hill VHF Club circa December 1971.

The 1296 4 way P/D used 2 UG-107A/U "T"'s and 1 UG-107B/U.

The 432 2 way P/D used 3 UG107A/U, 2 UG-29B/U females, 2 UG-27C/U elbows

73 John W5UWB

The Crawford Hill reprint was in MUD 99 proceedings. *_Originally written and posted on the Cactus Reflector by Milt, N5IA _*

Frank, WB6CWN and Robin, WA6CDR trip

As some of you may know, Robin and I are two of three North Americans selected as part of the international team which will activate Ducie Island in the South Pacific, VP6DX, during the month of February. Both of us are extremely excited about participating in this rare opportunity. Together with us will be 4 Germans, 2 Russians, 2 Poles, 1 Greek and 1 Estonian.

Both of us are involved in the logistics of preparing some of the equipment and a lot of the ancillary items. Most of the immense amount of equipment, tools, etc., has been shipped by ocean freight from Hamburg, Germany, Boston, Mass., and by Robin from Los Angeles. Robin's shipment alone weighed in at more than two tons.

Anyway, it is down to short days now and I wanted to alert all the members of Cactus, Armadillo, Intertie, Inc. and all other affiliates that Robin and I will NOT be present at the Cactus Annual Meeting in Nevada. On the Friday (Feb 29th) and Saturday (Mar 1st) days of the meeting we will be aboard the Braveheart, having just left Ducie, enroute home cruising towards Mangareva in the Gambier Islands. We will be back into LAX on Wednesday morning the 5th of March.

Robin will depart LAX the middle of next week and fly to Auckland, NZ. He will be carrying with him a number of items as excess baggage, which either could not be shipped via ocean freight or were made ready too late to make the slow boat. He will rendezvous with the Brave heart at its homeport in ZL land. There all the ocean shipments and the baggage Robin is taking will be stowed in the holds of the Brave heart.

Upon sailing from NZ Robin will spend the 10 days "cruise" to Mangareva sorting and repacking all the shipments into item groupings according to the two different operating camps which we will install on the island.

I will fly from PHX to LAX on Sunday morning, February 3rd, and rendezvous with the European guys flying in from Frankfurt. We will all leave LAX that afternoon and arrive in Papeete, Tahiti that night.

We will be "tourists" in Papeete on Monday. Tuesday morning early we fly on a "milk run" weekly flight from Papeete to Mangareva in the Gambier Islands. That is where we will meet with the Brave heart and Robin. We sail immediately southeastward towards Pitcairn and on to Ducie. This leg of the trip is 72 hours of non-stop cruising.

On the morning of the 9th, we will begin 2.5-3 days of off loading from the Brave heart into Zodiacs, making runs to the island over the coral reefs, and setting up a very complicated two site operation which will have the expedition on the air for approximately 17 days. At the end, tear down will only take 1.5 days. The last night only the low band stations will be on the air. Then it is follow our tracks back to Mangareva, Papeete and LAX.

For all the juicy details and other things, you can go to <http://ducie2008.d11mgb.com/index.php> and keep track of everything. Read the latest news reports now, and the daily updates during the DXpedition period.

One of the goals of the DXpedition is to make as many contacts with individual call signs (stations) on as many different bands and modes possible. The DXped is going to extreme lengths to be available on the difficult low bands with high performance Rx and Tx antennas. The operating schedule to keep 7 stations operating 24 hours a day for 17 days, besides all the other background activities that need to be done, will be a Herculean effort.

To that end, let me say that it is *_NOT_* going to be real difficult for anyone reading this message to make contact with the DXped if they have even a minimal station. It will take some perseverance. From the SW USA the distance to Ducie is a bit over 4,000 miles. The location is directly south of San Francisco so even the higher bands (17, 15, 12, 10 & 6 Meters) should perform well even at this low part of the sunspot cycle on the North to South trans-equatorial path. 20, 30, 40, 80 & 75 Meters should be like fishing in a rain barrel.

The high performance setup on 160 Meters should provide even the bedspring-loaded operators a good shot during nights of good propagation. Prime time for 160 will be after sunrise in Europe and before sunset in Japan. This is approximately 0800 to 1000 Z. During this period the only competition will be from other stations in North and South America. Although 80, 75 & 40 extend into daylight some at both sunset and sunrise, these hours may be the best for minimal competition from the other continents.

The pileups will be tremendous. Pick the time of day to call us according to the band, your station capability, your operating experience and the propagation at that time.

SOOOOOOOOO, *_I am proposing a competition among this group_* and offering an incentive to work us on as many bands and modes as you can. We encourage those of you who have club call signs, etc., to also use them to make additional contacts with us on as many bands/modes possible. To the call sign/operator which contacts the DXpedition on the most bands/modes and submits a report to me upon my return, I will send a "VP6DX, Ducie 2008" baseball type cap. In case of a tie for the most bands/modes, I will award the cap to the entry, which shows the last contact at the earliest date/time.

Simple contest. Simple rules. Great fun over a 2 1/2 week span of time!!!!

The DXpedition looks forward to many, many contacts from members of the Cactus, Armadillo, I2, and other affiliate systems. Feel free to pass this information along to any and all. Robin and I are spending a lot of time and money to have some fun and adventure, but it would elate us even more to give out contacts for a truly "rare one" to all of you. You may even be lucky enough to catch one of us at the key or microphone when you make your "Q". I hope so.

If anyone has any questions, please feel free to contact me direct by replying to this E-mail.

O, BTW. If any of you are into real trivia, Google for "Point Nemo" or go directly to

<http://www.geocuriosa.com/pointnemo/index.html>

Then go to http://en.wikipedia.org/wiki/Pole_of_inaccessibility for more information. Our location is under the heading of "Oceanic Pole of Inaccessibility".

73, and a Happy New Year to everyone de Frank, WB6CWN

The TB-17 eval boards for the HELA-10 showed up today. It turns out that you get the board, chip, all passive components, interconnects, AND enclosure (sans lid), all ready to plug and play. Everything in the datasheet at http://www.minicircuits.com/pcb/WTB-17_P02.pdf for \$39.95. I don't see how they can afford to sell them for that price. If anyone needs a 1-watt, 3.5-dB NF amp for the DC-1 GHz range, the TB-17 is a heck of a bargain. -- John, KE5FX

I'd assume from the "UNIT IS ON BOARD" line below that it includes the part, baluns, everything except maybe the SMA jacks. <http://www.minicircuits.com/cgi-bin/modelsearch?model=tb-17&x=0&y=0>

I just ordered three of them, so will find out soon enough. I happen to need a low-NF driver for an NLTL comb generator that's good for +28 dBm at 640 MHz, and this looks like a reasonable way to get to that power level. If they actually give me the enclosure and SMA connectors for that price, that'd be too good to be true....-- john, KE5FX

From: microwave-bounces@echo.valinet.com

Dr. Gerald N. Johnson

To: Microwave list Subject: Re: [Mw] VHF gain block ?

On Fri, 2008-01-04 at 12:59 -0800, John Miles wrote: Hmm, that's a nice part, and the 50-ohm eval board (TB-17) is only \$39.95. Hadn't heard of it, thanks for the pointer!

john, KE5FX

pipe cap filters more I have a typical high resolution plot of a 2.2 GHz filter on my web site

http://www.ko4bb.com/ham_radio/Pipe_Cap_Filters/

I believe the data scales well at other frequencies. This particular design has about 0.5% bandwidth at -3dB and 15% at -30dB, which I think is typical of that design. The bandwidth is adjusted by varying the probe length. When you increase the probe length, the bandwidth increases and the insertion loss decreases, but the optimum trade off for most ham applications will be typically with not more than a few % bandwidth and 2-4dB insertion loss. When the probe length is increased significantly, the response develops many spurs, at least on my sample of two (1/2" and 1 1/2"). When the probe length is decreased significantly, the insertion loss seems to drop faster than the bandwidth

narrows...

I will try to take similar plots of the 10 GHz filter made around a 1/2" pipe cap later this week-end.

The good news is that the placement of the probes does not seem to be critical, and it is quite possible to check the filter before soldering the pipe cap to the PWB, which allows adjustment and checkout of the probe length.

One of the pictures on my page linked above was taken with the pipe cap simply held in place with a C-clamp. I could not tell the difference when the pipe cap was soldered.

Before soldering the pipe cap, make sure the mating surface is smooth and flat, it will make soldering easier. To solder the pipe cap, I simply lightly held the semi rigid cables in a vise, with the PWB resting on the top of the vise, I placed the pipe cap where I wanted it to be, I put a little bit of solder flux along the joint area and applied the butane torch to the top of the pipe cap. If you accidentally direct the torch to the PWB, you can guess what will happen. When the flux started boiling, I applied a small amount of solder to the joint. The solder quickly made a nice, thin and smooth joint and I was done. It only took a few seconds and the pipe cap did not move. Let it cool slowly, it will take a while. The same procedure was used with the 1/2" pipe cap and the 1 1/2" pipe cap. Didier KO4BB

Tripods and things to hold your dish/rig.

Microwavers are always looking for something better to hold their antenna and rig/transverters up in the air while out on a roving expedition. A number of things can be used to hold that antenna, but one wants to move it in azimuth and elevation to align with the other communicator. The ground that you found may not be level so the ability to adjust legs is also nice to have. Here are some ideas of things to use.



Here is a 4-foot dish on a trailer that allows you to move in azimuth and elevation and have some initial height over some thing growing along the roadway that you have stopped at. It does fairly well at highway speeds. But there is the problem moving the trailer to that neat site on the mountaintop.



You can use a vehicle wheel/ tire to place a pole vertical and brackets to hold the dish. This you can roll to the site, but needs a level site to park on. The two pipe floor mounts make a rotator and a smaller pipe holds the two sections of pipe together in the vertical.



Sometimes you find a large tripod that is five feet tall. In this case there are leveling extensions on each leg to adjust for uneven ground. But it is too tall for the average amateur to reach his equipment mounted on top.



A Radio Shack 3 foot roof mount makes a nice tripod for fieldwork. It has a hole for 1.5-inch pipe or electrical conduit. You can build a platform to hold your electronics package. The TV satellite dish has elevation adjustment. Coaxial conduit allows azimuth rotation. Radio Shack has a 5-foot version of this tripod.



The roof mount tripod lacks adjustment for uneven ground. You could take out the crimped feet and use coaxial conduit to make the legs adjust.



The Quick Set Sampson mount is great where you have a level floor to roll on. It has the azimuth and elevation adjustments. The rig does need a 1/4 -20 screw mount to bolt on to the platform of the head. There is a version of the Sampson that does have legs.



The Quickset Majestic is a nice mount that has about all the features you would like on a tripod. One thing that Chip, N6CA likes to do is add an extension to the leg to vertical member where the legs can extend really wide and give the tripod the maximum stance to keep the wind from overturning your antenna and gear.



The Majestic also has a vertical adjustment to allow the antenna to move up and down. Sometimes a couple of inches to clear that fence is nice to have. Bill WA6QYR

PaulKH6HME of Hawaii talks with Jerry N7EME and Dick, K6HIJ about their project planning on the .34 GHz transverter for the SBMS at the January 2008 meeting.





Dennis, W6DQ holds his Cesium standard at the January SBMS meeting where he talked about “Time and Frequency”. 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 under 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, bburns@ridgecrest.ca.us, 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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