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

April 2008 Edition

President John Oppen KJ6HZ 4705 Ninth St Riverside, CA 92501 kj6hz@amsat.org.
Vice President Dan Welch W6DFW PO Box 2093 Anaheim CA 92814 scientist@dslextreme.com
Recording Sec Dick Bremer WB6DNX 1664 Holly St Brea CA 92621 714-529-2800 rabremer@sbcglobal.net
Corresponding Sec Kurt Geitner, K6RRA1077 E Pacific Coast Hwy TMB142 Seal Beach, CA 90740 310-718-4910 k6rra@gte.net
Treasurer Dick Kolbly, K6HIJ 26335 Community Barstow, CA 92311 760-253-2477 dick@eventhorizons.com
Editor Bill Burns, WA6QYR 247 Rebel Rd Ridgecrest, CA 93555 760-375-8566 bburns@ridgecrest.ca.us
Webmaster Dave Glawson, WA6CGR now in new location wa6cgr@ham-radio.com
ARRL Interface Frank Kelly, WB6CWN PO Box 1246, Thousand Oaks, CA 91358 805 558-6199 fm.kelly@verizon.net
W6IFE License Trustee Ed Munn, W6OYJ 6255 Radcliffe Dr. San Diego, CA 92122 858-453-4563 w6oyj@amsat.org.

At the **3 April 2008 SBMS** meeting Ed, KE6FJU will talk about 1.7 GHz weather satellites.. 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/.

Elections for 2008-9 officers this meeting.

REMINDER- NO PARKING IN THE CHURCH LOT

Last meeting Square Deal Doug, K6JEY had a good talk on measuring sun noise with a meter on your IF radio. The DVD of the talk is on the SBMS/OVRO site. He also purchased an AIL hot-cold load source for testing and calibrating noise sources at the LAB. **Welcome to visitor Fred, KD6JL from Fresno**. Thanks to Larry, K6HLH for setting up the W6DTA estate sale. Welcome to new member Allen Murashie, KE6FTU. Treasurer Dick, K6HIJ reported sending and employee number to the IRS for our report in 2007. SBMS- ARRL affiliations paper work is complete for another time. Nominations for SBMS 2008-9 officers were made: President – Jeff, KN6VR and John, KJ6HZ; VP Larry K6HLH, Doug, K6JEY and Dan W6DFW; Treasurer, Dick, K6HIJ; Recording Sec Maurice, K6YNA; Corresponding Sec Kurt K6RRA. It was noted that John Kj6HZ has been doing a great job as President. Pat, N6RMJ proposed a family bowling night somewhere near the “LAB”—Gable House Hawthorne and Solmia streets. Doug, K6JEY proposed a dinner at the Bass Pro Restaurant 7777 Victoria Garden Lane in Rancho Cucamonga 909-922-5500 on 19 April 6 pm. Dave, WA6CGR is the new webmaster for the SBMS site.22 people present.

Scheduling
1 May Frank, WB6CWN on SDR radios.
10-11 May 2 GHz and Up contest
5 June TBD
3 July TBD

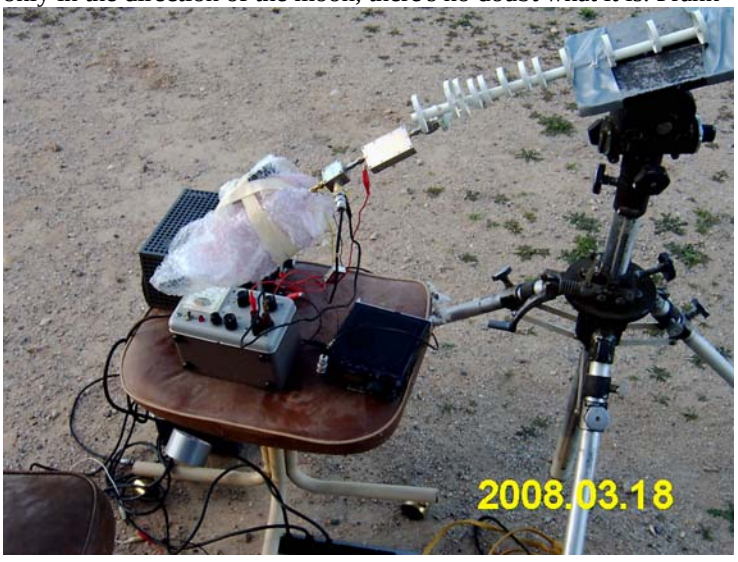
“Wants and Gots for sale”.

Want WR90 Aluminum spacers 0.350 or thicker and Bird 500C 100-250 MHz 500w slug Jeff Fort Kn6VR 760-948-7227
Want FM deviation meter and any waveguide transitions Dick K6HIJ 760-253-2477/ 5127
For Sale WR42 waveguide flanges $15 pair, WR22 waveguide flanges $20 pair, WR90 flanges $20 pair Joonho KG6MQS 626-333-3250
For sale HP 8551/851 working 10 MHz to 12 GHz spectrum analyzer $50 Bill WA6QYR bburns@ridgenet.net can bring to SBMS meeting.
Want Wanted: Cover for a P-com ODU Chris n9rin cshoaff@yahoo.com
For Sale 3 ft Prodelin offset dish Frank WB6CWN 805-558-6199
Bob Joy has a 10-foot C-Band dish that he wants to get rid of in Ridgecrest. I think that it has most of the controls, too. Bob's phone is 760-371-1596

Activity reported at the March meeting: John, KJ6HZ went to the DTA sale; Dick, WB6DNX is now out of the hospital and saw the last meeting on ATV; Frank, WB6CWN has a Stelex syntheses working and has been measuring its phase noise, and has a SDR-14 radio up to 30 MHz, and is planning during the June VHF contest to work Phil, W6HCC in Colorado from the Inyo mountains in CA some 700 miles over Rockies, and has a 2.3 GHz Spectrain amplifier similar to Pyrojoes 4mw in and 180w out no tuning 24v@50a or 48v@25a input; Chuck WA6EXV is building a power supply for the 25w 10GHz amplifier; Bill, WA6QYR went to the DTA sale; Doug, K6JEY worked 160 meters to Japan and has an Endwave 24 GHz rig; Jerry, N7EME had a 3.4 GHz PLL LO for the Society project that puts out 13 dbm using a 10 or 1 MHz reference 12v 150 ma works for both US and Europe 3.4 GHz band; Jeff, KN6VR had his feed horn for the 3 ft dishes; Kurt, K6RRA went to the DTA sale; Maurice K6YNA went to the DTA sale; Chris has a board for a 8-12 GHz PLL LO that has 10 mW out; Bill N6MN went to the DTA sale; Dennis, W6DQ found his cord for the 10 GHz radio in a box as he unpacks his house; Dick, K6HIJ is having troubles with 47 GHz test equipment, purchased the remainder of the DTA equipment; Pat N6RMJ went to the DTA sale and has his 24 GHz rig back on the air; Joonho, KG6MQS went to the DTA sale and has his 24 GHz rig power supply running; Larry, K6HLH ran the DTA sale and has his 1296 MHz amp working; Wayne, N6NB went to the DTA sale, Larry was a great seller.

Email Threads
I heard Selene around the moon to night at 6:30 PDST 18 March 2008. Moon was still low in sky which made pointing easer with antenna duck taped on a tripod. LO was at 1822.49 MHz (an old phone system brick). Just a some 60 dB gain amplifier I got off ebay for front end. 6 ft loop yagi. Just a mixer I had laying around the shop in to FT817 at 441.128 MHz IF. I could move quite a ways (10 degrees or more) off the moon before losing signal. Loop yagi beam width? Bill WA6QYR

Congratulations Bill!!! It's just a carrier, but the notion of copying a 250mW transmitter from the moon is the magic of radio. Welcome to the club. Chris N9RIN and I listened to it at my place last weekend, both on a 17dBi gain 3' boom loop yagi (very weak) and on a 27dBi gain BBQ dish (armchair copy).With the little Doppler and hearing only in the direction of the moon, there's no doubt what it is. Frank



I thought I would give you a little more info about the board I brought to the meeting. It is FR4, 0.062" thick, 2 layer. It can be put on a frequency between 8 GHz and 10.8 GHz with an output power of +10dBm.The board has run for 1 week in an ambient temp of 30C with no problems and no change in output power. The board can be useful as the source for a beacon or as a 10.368 GHz source for whatever.
Chris n9rincshoaff@yahoo.com

My HP power supply literally caught fire tonight while charging a small battery on the bench! After airing out the shop, an examination of the supply's PCB showed that Q9 and C9 were toast. In fact all that was left of the transistor were its thee little wire leads sticking up out of the board. This is the first time I can remember anything like this happening to an HP product. I'm wondering if anyone has a schematic to a HP 6522A dual supply? Its a 3 1/2" high rack mount unit rated for 0-40V @ 0-1.5A with current limiting. I'd like to know if there is a 2N number for Q9 and what the value of C9 is. Any help is appreciated. Thanks,Frank

John Miles wrote: The manual is on agilent.com:> http://cp.literature.agilent.com/litweb/pdf/06255-90002.pdf

I had a similar problem in the power supply of a HP-3336B. It seemed that the regulator pass transistors were running really hot. Way too hot. I found that some of the later versions had bigger heat sinks so I increased the heat sinks to really monster ones. This didn't really help much. I later found that the input Voltage was set for 100 Volts instead of 110 or 120 VAC. Changing the input selector solved the problem. The unit had been previously been used in a U.S. lab and had chronic power supply problems. It's been running fine for over a year since I changed the input Voltage selector switches. Hope this offers some help.
Burt, K6OQK

Hi All,I came across this cool online calculator site. It has everything. If youscroll down towards the bottom, you will find the electronics area, whichincludes all kinds of antenna and other tools. The site also has mechanicalengineering tools.Steve, ad6ht
http://www.calculatoredge.com/index.htm

All, Here is another useful conversion site: http://www.sengpielaudio.com/Calculations03.htm
I use it all the time! Enjoy, Dave - WA6CGR

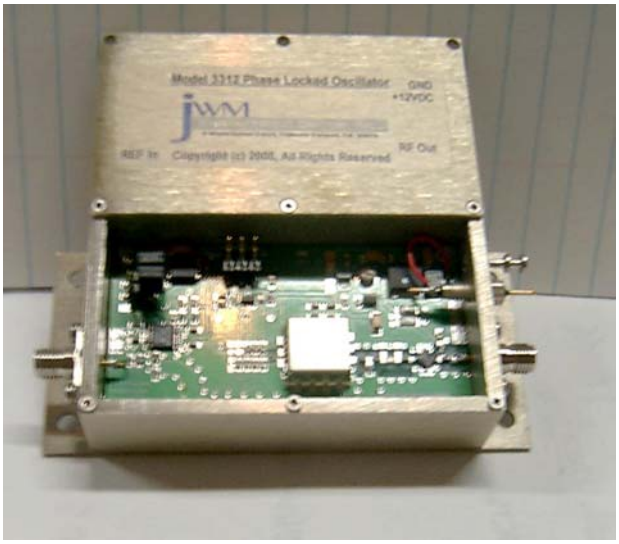
DUCIE ISLAND, VP6DX: MAKING CONTACTS, BREAKING RECORDS ---Robin, WA6CDR was in the group.
After 13 days, 7 hours and 37 minutes of continuous operation, the VP6DX Team on Ducie Island <http://ducie2008.dl1mgb.com/index.php> made their 168,723rd contact. Valeri Koursov, RA0ALM, of Krasnoyarsk, Russia, contacted the Ducie Island expedition on Monday, February 25, 2008 at 0437 UTC on 30 meters. According to documents maintained by Jari Jussila, OH2BU, this contact breaks the record for the largest number of contacts made by any radio expedition. The previous record was held since February 8-28, 2001 by the Five Star DX Association's DXpedition to the Comoros Island, D68C.

The Ducie Island DXpedition has broken other expedition records throughout the course of the DXpedition, including:
* The largest number of RTTY contacts, previously held by the Swains Island N8S DXpedition in April 2007.
* The largest number of SSB (voice) contacts, previously held by the Comoros Island D68C DXpedition.
* The largest number of contacts on 40 meters, previously held by the Libya 5A7A DXpedition in November 2006.
* The largest number of contacts on 30 meters, previously held by the St Brandon Island 3B7C DXpedition in September 2007.
* The largest number of contacts on 17 meters, previously held by the Swains Island N8S DXpedition.
* The largest number of contacts with North America, previously held by the Comoros Island D68C DXpedition.
* The largest number of contacts with South America, previously held by the Peter I Island 3Y0X DXpedition in February 2006.
* The largest number of contacts with Africa, previously held by the Rodrigues Island 3B9C DXpedition in March-April 2004.

The Ducie Island crew received inquiries about the equipment and antennas used on Ducie Island. They reported that each operating position used:
* Elecraft K3 radio. They said "The outstanding receiver and transmitter characteristics allowed us to run two positions simultaneously on any band -- even the very narrow 30 meter band -- with absolutely no interference. Good design makes the complex appear simple: the ins and outs of this sophisticated radio were quickly mastered by the operator team, none of whom had seen a K3 before the expedition."
* Microham microKeyer II computer interfaces: plug in, turn on, call CQ and get to work.
* Acom 2000, 1000 or 1010 amplifiers: quietly getting the job done without trouble. The position used on 160 meters includes an OM 2500 HF amplifier.
* 200 W W3NQN bandpass filters from Array Solutions and 2 kW bandpass filters from 4O3A.
* WinTest logging software running on Durabook ruggedized laptops.
* Honda EM65is and EM30is inverter supply, gasoline generators. The operators report that the generators offer "100 percent reliability to date. The inverter system has been very tolerant of the widely varying loads presented to the generators as multiple operating positions switch between transmit (high power consumption) and receive (low power consumption), a vast improvement over previous gasoline generator designs."

The seven operating positions were divided into two sites: East (four positions) and West (three positions). The operating sites stood about 1 kilometer apart, a 15 minute walk over a coral shelf bordering the island's inner lagoon. Each site had its own WiFi network; a microwave link tied the two sites together. Sleeping tents and meals were located at the East camp.

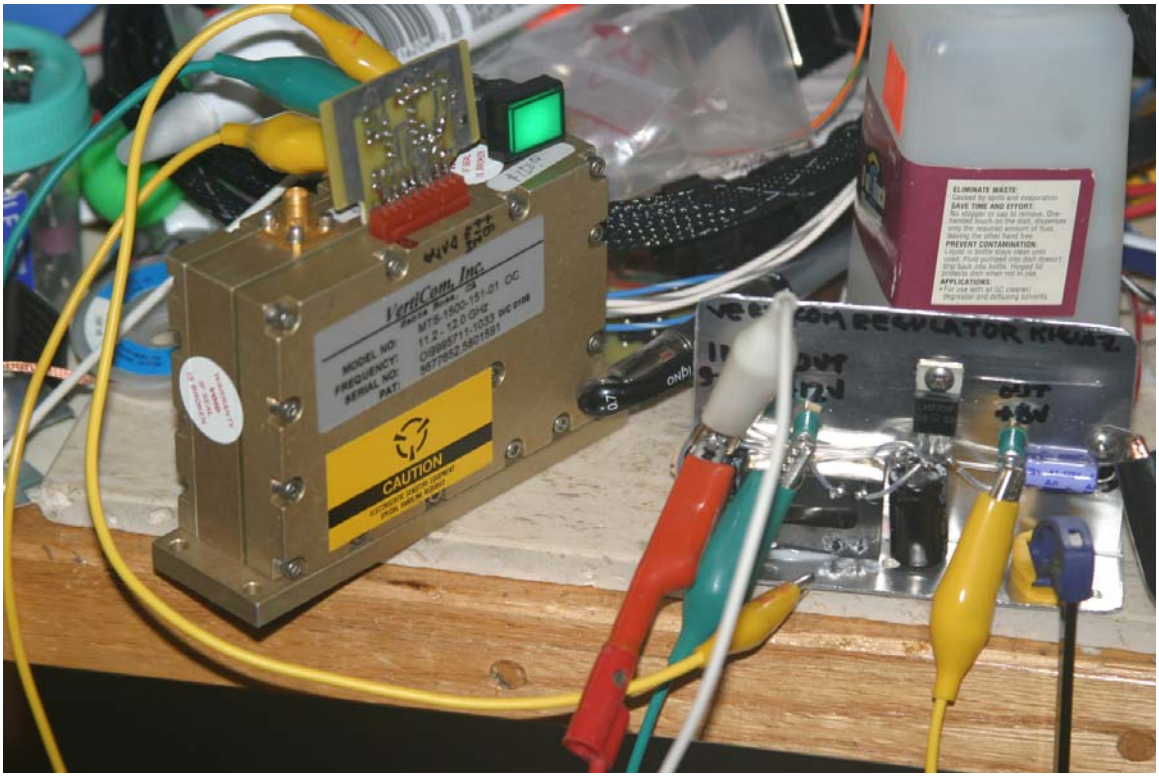
The Ducie Island DXpedition closed down operations on Wednesday, February 27. Amateurs who had QSOs with VP6DX can check the online logs <http://ducie2008.dl1mgb.com/onlinelog/index.php>. -- Information provided by VP6DX Team



JWM Engineering prototype 3.4 GHz LO for the SBMS 3.4 GHz transverter project. It has good phase noise properties for the project unit.

Frank, WB6CWN and his 180W 2.3 GHz Spectrane amplifier at the March 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 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.

San Bernardino Microwave Society newsletter
247 Rebel Road
Ridgecrest, CA
93555
USA



Happiness is: A locked Verticom synthesizer. . . de KH6WZ

Lamb Chop Board Conversion Notes: 992MHz Filter Construction

Wayne Yoshida, KH6WZ
kh6kine@earthlink.net

As I began to convert my QualComm "Lamb Chop" X-Band transverters, I wondered about the necessary 992MHz filter mentioned briefly in the conversion notes posted on the SBMS Web site. I thought it would be a simple matter to just call Digi-Key, and buy some kind of 992MHz filter. But no such a unit is sold over there. After several weeks of searching the Internet, I did not come across any information on an off-the-shelf filter for 992MHz. I thought that was very strange. However, I did recall a conversation I had with Bill Burns, W6QYR, at one of the SBMS meetings. Bill's answer was that Chip Angle, N6CA has a suitable filter for this frequency on his website, and they are easy to build. So I looked at Chip's technical paper on "Band Pass Filters for 900 thru 2400 MHz."

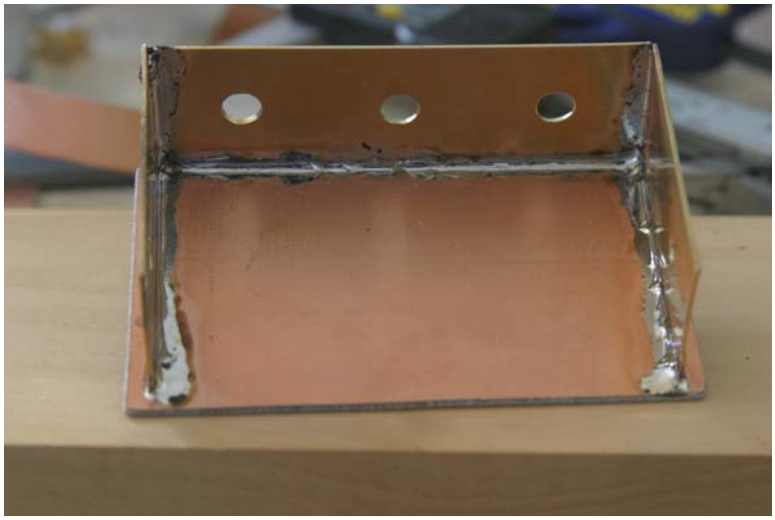
Since I never built a filter before (I usually buy them already made from surplus), I wasn't at all sure how to make such a filter. Here are my construction notes and hints, based on building not one, but four of these filters.

Some of the tools and supplies needed to make N6CA low-loss, three-pole filters.

Here's a good way to solder a trimmer capacitor to brass tubing – a woodworkers' clamp. Don't squeeze too tight, since the rubber jaws will soften when you heat the joint.

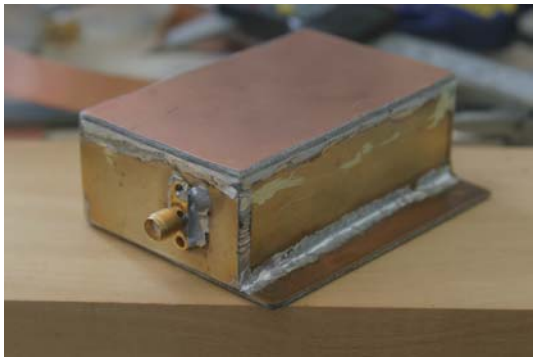
Quick! What is the diameter of a Johanson trimmer capacitor?

I used one-inch, .032-in. thick hobby brass (K&S Engineering) for the housing. I tried to bend a single strip, but that did not work. Separate strips worked better for me. Support the strips on a block of wood, and use something to weigh the strips in place. Tack-solder small areas at a time, then flow solder along the seams.



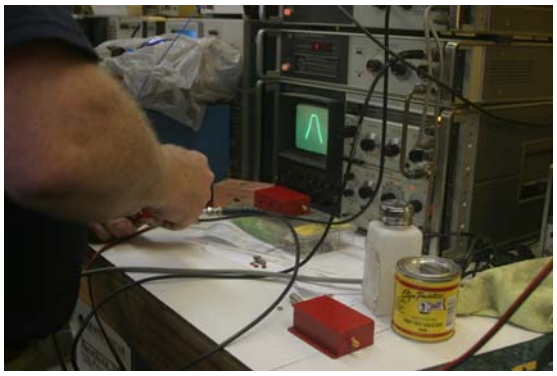
The top and bottom of the filter housing is made from scrap copper-clad board.

Chip's filter recipe calls for brass strips to connect with SMA connectors. I used thin copper strips on two of the filters (actually, smashed-flat number 12 solid copper wire), and then used the SMA center conductors on the other filters, as shown here. All methods worked fine.



This is a completed filter after the edges are trimmed down to size. I used a Dremel tool to grind the seams flat. Other tools can be used, like a belt sander or a router. Note the mounting flange area on the bottom right.

Perhaps the best part of building your own filters is the customization that you can do, including interesting paint jobs. The hot summer weather inspired me to paint one filter to look like an ice cream sandwich.



Dave Glawson, WA6CGR, is tuning my filters using the spectrum analyzer. The filter shape looks very good, and the insertion loss measures only tenths of a dB at 992MHz.

References

"Band pass Filters for 900 thru 2400 MHz" by Chip Angle N6CA
http://www.ham-radio.com/n6ca/appnotes/filters/bpfs.html

"A 10 GHz Dual Conversion High Side LO Transverter from Surplus Qualcomm OmniTracks Units" by Kerry Banke, N6IZW
http://www.ham-radio.com/sbms/sd/mwud99a.htm