



## 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 2007 Edition

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At the **1 February** SBMS meeting someone will talk about something. 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.

**Last meeting-** The SBMS contest committee will be sending the response back to ARRL contest committee and the VUAC group. Welcome to new members Michael Fox, W6MJF of Long Beach and Wayne Overbeck, N6NB of Tustin. Bob, WA6VHS presented a nice but short talk on 47 GHz and up hardware. 21 people present.

#### Scheduling.

**24 February will be the annual SBMS spouse dinner some where in the Brea area.**

March is still in the works too.

**Activity reported** at the 4 January SBMS meeting – Paul, KH6HME visited the meeting and has the 10 GHz rig ready for this summer; Bob, WA6VHS added to his 47 GHz rig; Juno, KG6MQS is finishing his 10 GHz synthesizer and working on his 47 GHz rig; Dick, K6HIJ is working on his wire bonding machine and his Qualcomm 10 GHz rig; Chip, N6CA is working on his BC-348 and R390 receivers; Chris, N9RIN went to Mazaland, Mexico; Pat, N6RMJ has his 220 rig working; Michael, W6MJF is learning about microwave; Jeff, KN6VR is working on a scope; Mike, W6YLZ has a 10 GHz loaner rig and is writing letter to the Mexico FMRE (ARRL counterpart); Bill, WA6QYR is working on his new Qualcomm 10 GHz rig; Chuck, WA6EXV is working on OVRO projects; Dick, WB6DNX spectrum analyzer CRT died and he has some 12v DC-DC converters for sale.

**OVRO report**—On 28 December there were 35 people visiting OVRO for the tour and science talk. Some Boy Scouts from Trona and Ridgecrest were present. A number of parents and children from Orange County schools took part too. Jeff, KN6VR had his trailer on site for people support.

More OVRO-I am building up five transverters and one low noise receiver that will be used on the SBMS/OVRO EME project. Each unit will be constructed on an aluminum plate that is 12" x 20" x 3/8". If you have access to this material, let me know. The raw plates can be larger and have small holes in them. I will cut them to the exact

size. Jeff, KN6VR came up with the six 14" x 14" x 1/4" front plates.

The plan is to have EME capability on the 1296MHz, 2304MHz, 5760MHz, 10GHz and 24GHz bands. The receiver will be designed for the 17cm and 21cm radio astronomy band, for use in the SBMS Outreach Program for students.

Thanks for any help you can give the project.

73 Chuck WA6EXV, Technical Director

I now have commitments for the transverters plates that I need for the project. Thanks for the response.

73, Chuck WA6EXV

#### **"Wants and Gots for sale.**

**For Sale:** 30W 1296 amplifier kit. Cost \$45, plus \$5 if sent by mail to cover cost of shipping and packaging. In So Cal, can arrange for pickup. Email [1296Amp@cox.net](mailto:1296Amp@cox.net) for more info. Chris Shoaff n9rin

**For sale** I have three NOS never been opened RCA 7213 1.5kw tetrode tubes. I have lowered the price to \$200 each plus shipping. Anyone interested in one or all of the tubes? Doug K6JEY Long Beach, CA. 90806

**For Sale-** Traco 9-15vDC in and +/- 12v dc and 24 v dc out at over 400 ma \$1 each Dick Bremer WB6DNX 714-529-2800

#### **\*\*\*SAVE THE DATES\*\*\***

Microwave Update 2007 is scheduled for Thurs October 18, Friday Oct 19 and Sat Oct 20th, 2007

The Mt Airy VHF Radio Club, aka "Pack Rats" will be planning and hosting this conference, along with other area clubs and sponsors. The conference will be held in King of Prussia, PA, between Philadelphia and historic Valley Forge. We have booked facilities at a hotel, which is currently a Hilton, but will be undergoing a name change this month and will likely become a Wyndham. As soon as the hotel changeover is complete, you will be able to register for the conference and also be able to book rooms there at the special conference rate. Details will be listed at the [www.microwaveupdate.org](http://www.microwaveupdate.org) web site.

Conference chairmen are Phil Theis-K3TUF and Dave Fleming-KB3HCL. Papers and speakers are being sought by program chairs: Paul Drexler-W2PED [pdrexler@hotmail.com](mailto:pdrexler@hotmail.com) and Marc Franco-N2UO [lu6dw@yahoo.com](mailto:lu6dw@yahoo.com)

Thursday 10/18 is time for a surplus tour and area sight-seeing

Hospitality room will be available Thurs-Fri-and Sat eves

Vendors will be on site. Fri eve flea market is planned. Big Banquet Sat eve. Plan to come with your family or significant other, as there's plenty to see and do in the Philadelphia area.

C U there, Rick, K1DS, president, Pack Rats

#### **Survey of SBMS Membership Microwave Communications Equipment**

2-2007

Who can get on what bands and who still needs parts or help in getting a collection of parts to a working in the field type radio. Please take a minute and note what you have where. Bring it to the meeting to share.

<u>Band</u>	<u>Collection of parts</u>	<u>Untested Assembly</u>	<u>Field Tested Rig</u>
1.2 GHz cw/SSB/FM	_____	_____	_____
2.3 GHz cw/SSB/FM	_____	_____	_____
3.4 GHz cw/SSB/FM	_____	_____	_____
5.6 GHz cw/SSB/FM	_____	_____	_____
10 GHz cw/SSB/FM	_____	_____	_____
24 GHz cw/SSB/FM	_____	_____	_____
47 GHz cw/SSB/FM	_____	_____	_____
78 GHz cw/SSB/FM	_____	_____	_____

Name \_\_\_\_\_ call \_\_\_\_\_

Are you planning to be a rover during the next 10 GHz and Up Contest? How about the Jan or June Contest? Where do you plan to go? Got maps? GPS that reads out grid squares?

Do you need a ride-along helper? navigator? Liaison radio operator?

Will your gear operate off of 12 vdc or will you need to power up a generator?

Just some questions to think about. Come to the SBMS meeting where such things will be discussed.

#### **Off the Internet----**

Check out [www.brantacan.co.uk/trussthree.htm](http://www.brantacan.co.uk/trussthree.htm), which is an explanation of truss (Rohn tower in two dimensions) nomenclature. The page leads to a John Hopkins virtual lab page. [www.jhu.edu/virtlab/bridge/bridge.htm](http://www.jhu.edu/virtlab/bridge/bridge.htm). This info page goes to a calculation page that lets you put loads on a truss and see the magnitude of forces involved with the truss members. Since I am planning to construct a sizeable tilt over tower, this calculation gives me an idea of the sizes of the forces in the structure. Maybe I should be constructing the barbwire fence under the footprint of the tower that keeps out the potential victims of a metal failure? Having more fun with greater frequency, John K2STO

I found some Jupiter 12 channel GPS receivers on ebay at a very nice price.

eBay # for single purchase for \$15.00 = 320065630502

eBay # for 5 units for \$50.00 = 320065630951

73 es GL, Jerry W7QX

On Mon, 2007-01-08 at 15:05 -0500, Arthur Shulman wrote:

Thanks to all who answered my question with good advice, and especially to Kent Britain who got the ball rolling! I have made arrangements to a) purchase, and b) borrow a recommended instrument in the interim.

I would still like to investigate the possibility of using analog meters 'barefoot', until the 415 arrives. So my original question remain, "micro ammeter or milliamp meter?" I suppose that question can be easily settled with 10 minutes spent profitably in the lab! I'll keep the group informed as the information develops.

Arthur ve3zv

Arthur,

Another consideration in choosing between dc and audio detection with crystals, is the linearity of the crystal itself. Back in the days when direct detection was used with slotted lines for impedance measurement, it was necessary to calibrate the crystal/micro ammeter system, as detector crystals exhibited square law performance over only a limited range of amplitudes. This is sometimes the reason for choosing to employ very low levels that require a modulated signal and calibrated tuned amplifier. Even with directional couplers, if you wish to measure forward/reverse ratio with an accuracy of a db or two, with dc detection, I believe it would be first necessary to calibrate your detection system with a suitable variable attenuator. Even at low levels, crystals exhibit non-linearity over ranges of ten db or more. For this reason bolometers employing instrument fuses or very thin wire were often used with audio modulation in critical applications. They offer much greater detection linearity than crystals, but are not as sensitive. Some of the HP 415 series instruments have/had provision for biasing bolometers. I don't remember if the 415E still retains this feature. Regards, Bruce, KG6OJI

Depends on how much power the detector sees. You probably don't want to run more than a few milliamps. Often microwave diodes have a very small junction area and more than a few milliamps can melt it. Or burn off the cat's whisker that makes contact to the junction. Low resistance micro ammeters would be preferred to keep the voltage down because microwave diodes tend also to have thin junctions that dislike more than a few volts reverse voltage. 73, Jerry, K0CQ

True, the 415 family is calibrated for the square law region. Those fuse bolometers depended on the fuse wire being made of platinum smaller than a hair in diameter. So that a length of it 3 to 5 mm long could be raised in temperature with the bias to have a resistance of 50ohms to match the coax. 73, Jerry, K0CQ

Subject: Re: [Mw] a question regarding proper usage of crystal detectors

Hi Arthur: You can do it that way, but most instruments modulated the RF, then just

run the diode detected signal though an Audio Amp. That's why most Signal Generators have that 1000 Hz AM

modulation position. Your HP 415's and Similar Narda and Marconi units are just calibrated audio level meters similar to what we use to have on Reel-to-Reel Tape recorders. With a sharp 1000 Hz audio filter built in. A good HP415E with diode detectors can work down to the -80 to -90 dBm range. See if you can find any HP415E or similar 'SWR Indicator'. I don't think you'll be disappointed. 73's WA5VJB

Arthur Shulman wrote:

I have a pair of Wiltron crystal detectors, Model 75KA50 that I envision using with an assortment of directional couplers on the lab bench, between 1 and 10 GHz. The driving instrument will be an appropriate signal generator, running at a level of 0 to +10dBm. Regarding the output from these detectors, is it customary to drive milliammeters or micro ammeters as indicators? Should the detectors see some optimum load resistance? Is there any advantage to using an op amp as a meter amplifier? If so, is it essential? Arthur ve3zv

In a message dated 1/8/2007 8:54:20 A.M. Central Standard Time, [dentist@nornet.on.ca](mailto:dentist@nornet.on.ca) writes:

Well isn't that interesting, Kent! I had no idea a modulated signal was involved! If the HP415E is big, hot, bulky, and 'hollow-state', the option is less attractive! Going to check it out now. Arthur

[W0EOM@aol.com](mailto:W0EOM@aol.com) wrote: Since we are on the subject of bolometers, I have a box of new replacements units I got some years ago. Some are mounted on mica and are fragile, as I think they are 30 or 40 years old. Types are PRD 614, 631C, 617, FXR Z223A, and Narda N-821B, 38B12BM, and Narda N-610B some are flat disc, others in a cartridge mount. I think I have two of the fuse type also. \$2 ea if anyone can use them. About 20 total if someone one wants a package deal. On the Wiltron detectors, I notice my catalog has curves of dbm in vs. volts out for different loads 50 ohms to 50K.

Just this evening, I was reading the latest DUBUS (4/2006) and found a very interesting suggestion for mm-wave power meters from DL2AM in his 122GHz addendum on Page 57: he says he is using an HP 432 power meter with an HP R486A thermistor head (26.5-40 GHz) on 60, 76, and 122 GHz by sliding the smaller waveguide around on the bigger one for max reading, then bolting the flange in this position. Readings are down somewhat, but most of us don't have anything better at these frequencies. [Locally, W1RIL used a WR-62 head at 24 GHz with a homemade taper soldered up from hobby brass] even more interesting, he suggests a quick way to test these heads - shine a torch (flashlight) into the waveguide, and the thermistor should detect it. That's an incandescent, not LED, light. Good test at the flea market. I have an R486A somewhere, but couldn't find it, so I took my WR-42 head and shined the flashlight in. The meter moves. The effect is thermal - I also tried an LED pointer, which should be some part of a milliwatt, and got nothing. So, if you find an odd size waveguide head, it can still be usable.

73 Paul

Paul - I have two R486 heads, and tried putting in a 78 GHz signal after I read the article. There is definitely a response, but over a 1 GHz range, there were peaks and valleys of over 20 db. It will work as a tune-up indicator ok. The heads is only 3 to 6 db down at 47 GHz.

Will

There's another circuit here: <http://www.sonic.net/~n6gn/hr88/a2/article2.html>

the power meter is about a quarter of the way down the page. The scans of the original Ham Radio article pages aren't great but they are viewable. This is actually a power meter that is surprisingly accurate using the HP2800 diode and the curve Glenn has just below the schematic of the detector. I've built several of this right into BNC and SMA connectors. They are good to 3456 MHz with the HP2800 diodes.

73, Zack W9SZ

On Tue, 9 Jan 2007, 3WMail Guest wrote:

While it will probably not apply much over a gigahertz, back when I was a student I asked Dr Charles Wenzel to characterize a 1n914 diode detector with a voltmeter for me, he wrote it up and published it and the results are here: <http://www.techlib.com/files/detect.pdf> incidentally his synthetic circulator and other RF circuits are worth a look, his main business is making high quality crystal oscillators and RF modules. Steve N8VKD

I should have mentioned that the signal does not require modulation for the DVM indicator to work. This allows use of other types of signal sources; one I have used many times is a FM. handheld transceiver on low power.

73, Gerald, K5GW

In a message dated 1/8/2007 11:55:13 A.M. Central Standard Time, [TexasRF@aol.com](mailto:TexasRF@aol.com) writes:

At the risk of being called "cheap" there is another indicator that is very sensitive and readily available:

An ordinary digital multimeter on the low d.c. Current or low D.C. voltage range will typically indicate down to about the -40dBm level. At this level, the DVM just begins to show a reading. At the low end of the power range the readings will approximately follow square law and at higher power more like linear. The detector must be D.C.

coupled for this to work but most are.73, Gerald K5GW

For those who missed them last time: Electronic Goldmine [www.goldmine-elec.com](http://www.goldmine-elec.com) is having a close out sale on plastic DIP signal switching relays, Fujitsu UM1-12W-K. Their cat. # G14599 at 2/\$.99 1.1 SWR to 1 GHz or so at about a watt. Probably great for 2M IF switching, etc. or a Flex-Radio type UCB board. Or just for the junk box!!!! NOU

This web site...<http://students.engr.scu.edu/~ychen0/adsdoc/vcsys/index.html>. Includes a collection of short-form specifications for various RF and lower microwave components by HP/Agilent, Q-Bit, Watkins-Johnson, Minicircuits, and TriQuint. 73--Brad AA1IP

To my WAIC-FM friends,

Hope that you all had a very nice Christmas & Hanakkah holiday.

One little mentioned, but extremely important event happened just about 100 years ago this month.

In late 1906, Reginald Fessenden had been experimenting with sending voice and music over radio waves.

Fessenden was working for the National Electric Signaling Co., at their coast station at Brant Rock, in Marshfield, Mass, just north of Plymouth. He was a very smart young man who had already worked with both Thomas Edison and George Westinghouse.

It was still very early in the history of radio. Early experiments started in the 1880's and by 1900 Marconi, Fessenden and several others had figured how to make Morse code wireless transmitters and receivers. Both Marconi's and Fessenden's companies had set up at least one shore station and outfitted some large ships with radio receiving and transmitting gear. Up until December of 1906 this was accomplished only by the means of a "Spark Gap" transmitter. In lay terms, it was somewhat similar to what you get if you have a noisy electrical switch or device in your home and can hear the "snap" in your radio or TV every time you turn it off or on. They had figured out how to make the "snaps" long or short, so they were able to send and receive Morse code fairly well. But the spark gap method was very noisy electrically, and took up an enormous piece of the radio spectrum. And, with that method, essentially, most every station was on the same channel!

Late in 1906, he took delivery of a new invention called a high frequency alternator. It was invented by Ernst Alexanderson of the General Electric Co. Earlier in 1906, and possibly as early as 1900, Fessenden had already conducted successful lab experiments, sending rudimentary voice over a more advanced type of spark gap transmitter. But it still was on the noisy, inefficient, and extremely broad banded spark gap system. The alternator was to be the key to making long distance, easily intelligible communications over long distances possible. This was, essentially, the birth of what we know today as "AM" radio.

The story goes that on Christmas Eve, 1906, Fessenden sent out the first Voice and Music Radio Broadcast in History from the Brant Rock station. According to the tale, he came on the coast station with his voice, explaining what he was about to do. Then he made various test announcements, read a passage from the Bible, and played "Oh, Holy Night" on the violin. Although the Christmas Eve story is not well documented, there were reports from ships at sea, and from receiving stations up and down the U.S. East Coast, and company records, that various "broadcasts" of voices and music were transmitted and received from Fessenden's Brant Rock station during December of 1906. Whether or not all this new type of broadcasting actually happened on Christmas Eve, we may never know. But it is an interesting addition to the historical account.

I just wrote this to let you all know that the reason we all met in the first place, and a large part of why we remain connected, that of Broadcast Radio, was essentially, invented almost exactly 100 years ago. His invention led directly to AM, FM, TV, cell phones, cable, 2-way communications for fire, police, NASA, and the world. Fessenden died in 1932. Surely, by that time he was able to enjoy the relatively high fidelity of AM broadcast and perhaps enjoy some of the musical artists, news reports, and sporting events of the time. Although, we know he missed Roosevelt's speech after Pearl Harbor, Frank Sinatra, The Lawrence Welk Show, Eisenhower, The Rolling Stones, Castro, Bonanza, Junior Walker & the Allstars, 60 Minutes, Paul Harvey, Man Landing on the Moon, Tiger Woods, Don Imus, The Boston Red Sox winning the World Series, and both Iraq Wars. Imagine what we all would have missed if one guy, around 1906, had NOT been able to figure how to transmit voice and music by wireless!

It will be interesting to speculate on what the next 100 years brings.

Happy Holidays and Best Wishes in the New Year. I hope that our family can visit with you all at some time not too far in the future. Mark & Linda Casey & Family Hampden, Mass.

A couple of recent optical communicator articles I put together have been posted on the web at the following URLs. One is a general slide presentation in Power point of what we've been doing in our San Diego Microwave Group with lasers and the other is a specific article on the wide band laser link we just demonstrated this last weekend during Amateur Radio Field Day. Our demo setup in one direction was video and audio from a video camera fed to a channel 3 RF modulator which was amplified to 0 dBm (1 mw) and applied to the laser pointer. At the receive end we had a pin photo detector (reverse biased for reduced capacitance) feeding the recovered channel 3 TV RF to a

television for audio/video display. In the other direction we had a 2 meter FM handy talky attenuated on Tx to 0 dBm and modulating the laser pointer directly. At the Rx end the same biased detector arrangement fed a 2 Meter HT set on receive. [http://www.earthsignals.com/add\\_CGC/hr/Wb\\_Laser.doc](http://www.earthsignals.com/add_CGC/hr/Wb_Laser.doc)(2.6 mb)  
[http://www.earthsignals.com/add\\_CGC/hr/Wb\\_Laser.ppt](http://www.earthsignals.com/add_CGC/hr/Wb_Laser.ppt)(6.6 mb)

I- Kerry Banke N6IZW -

Here is the link to the NLOS 45km grass bounce experiment performed in France I also was going to present last evening. - Kerry N6IZW -

<http://pageperso.aol.fr/F1AVYopto/NLOS+LASER+EXPERIMENTS2.htm>

On Thu, 03 Aug 2006 23:59:46 +0100, Richard Bown<[richard.bown@blueyonder.co.uk](mailto:richard.bown@blueyonder.co.uk)> wrote:

Hi all I acquired a year or two ago a nice ocxo. Originally at aprox 96.5 MHz. I've recrystalled it for 96 MHz to go in my 23 cm transverter. In unsoldering the case the manufactures label got lost. The little beastie measures 4" long by 2"x2", it has a 7 pin connector, a bit like a B7G base, and a SMC connector. I'm pretty sure these are fairly common industry standard. I need if anyone has the data the pin connection on the B7G type base. I know pin 4 is aprox +24V supply

pins 2,3 & 7 are ground pin 1??? Pin 5??? Pin 6???

At the moment the oscillator is running, and its getting hot, but no RF out, Can you help with indenting the three pins please

I looked up an old Vectron that seems to match physically what you describe. Pin 4 does = B+ and 24 VDC is the standard. It says 5, 6, and 7 are only used if it has electronic tuning. With tuning option, pin 5 =VCXO supply, 6 = VCXO input, 7 = VCXO return/case. So I'd assume pin 5 would have an output voltage if it is a VCXO model.

Words in the datasheet talk about optional TTL or ECL output requiring additional 12 V or -5.2V respectively, but I can't find any mention of where that voltage should be applied. Pin 1 seems like a likely candidate. The diagram lists it as N/C.

There are custom options for other input voltages in the range 15-32VDC.

What I am looking at is for CO-22x series devices. TTL output seems to be on a CO-231.

You say the oscillator is running. Does that mean you see a signal inside? Did you try it at 96.5 before you tore into it? The label information could have been rather helpful. Good luck

Hi Ed, I was down in Phoenix yesterday and stopped at his place to pick up 5 receivers and saved the \$10.00 shipping charge. He will probably sell you 2 pieces for \$30.00 plus \$10.00 shipping which equals \$40.00. You can get 5 pieces shipped for \$60.00

I am not an agent for him. I just thought it was a super deal and passed the information along to you guys.

73 es GL Jerry W7QX

Jerry, Did you purchase them? I could be interested in 1-2 units and pay forwarding costs. I have 4 ea. Reflock-I and II boards to some day set up with GPS reference. I'll check the e-bay #'s you gave. Ed - KL7UW

At 05:55 PM 1/9/2007 -0700, you wrote:

I found some Jupiter 12 channel GPS receivers on ebay at a very nice price.

EBay # for single purchase for \$15.00 = 320065630502

eBay # for 5 units for \$50.00 = 32006563095173 es GL,

Jerry W7QX

There are a couple useful programs here:<http://www.gpskit.nl/downloads-en.htm>

All the way at the bottom of the page are links to download Labmon. I've used the Labmon DOS program with success. I haven't used the Windows version yet.

73, Zack W9SZ

On Wed, 10 Jan 2007, Edwin B. Walker wrote:

Hello all, Is there a place to get the software that goes with this radio? Ed WA4DFS

Hi Brian and all:

I could make kits available to all in about 3 to 4 weeks. What I need is a parts list and a PC board layout, in express-PCB format. I have been doing kits for Paul, W1GHZ for the past year and some of his small projects.

73's Chuck WA3IAC

Brian Vietri <[bvietri@msn.com](mailto:bvietri@msn.com)> wrote: Hi, How and where do you find kits?

Thank you, Brian [bvietri@msn.com](mailto:bvietri@msn.com) Get more from the Web. FREE MSN Explorer download:

<http://explorer.msn.com>

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Hi Joe, The 5 units that I have are all "V180".

It is my understanding that no software is needed if you just want to capture the 10 KHz "standard" frequency output. Is that correct Joe? My Marconi GPS receivers have to "lock up" to the satellites and require software, which can be somewhat tricky. But when it is working correctly you can view which satellites (of the 12 running channels) are being received, where they are located and their signal strengths. Also the correct time and Latitude and longitude are given. I don't know if the software for the Jupiter's will give the same information but if you want to just lock an oscillator it appears that no software is needed.

73 es GL. Jerry W7QX

----- Original Message -----

From: "Joe Ruggieri" <[jruggieri3@cfl.rr.com](mailto:jruggieri3@cfl.rr.com)>

to: "Jerry Kleker" <[w7qx@msn.com](mailto:w7qx@msn.com)>

Sent: Wednesday, January 10, 2007 5:05 PM

Subject: Re: [Mw] Jupiter GPS receivers available

Hi Jerry, since you actually have the receivers in hand can you tell me the total part number. Also the firmware version number. This number is located on the center IC and should be V180 if it is the last rev. earlier versions had firmware issues. Some of the Jupiter's operate on 3v and some on 5v. Any help would be appreciated.

Thanks, Joe (KI4NPV)

It'd be fine for SSB. The noise specs in the graph on the page he links to in the auction are quite decent for a small 10-GHz source.

John, KE5FX

Subject: [Mw] dro pll

Are these units sufficient for SSB use? > [http://cgi.ebay.com/Microwave-Dynamics-10GHz-Dielectric-Oscillator-with-PLL\\_W0QQitemZ140072159738QQihZ004QQcategoryZ1504QQrdZ1QQcmdZViewItem](http://cgi.ebay.com/Microwave-Dynamics-10GHz-Dielectric-Oscillator-with-PLL_W0QQitemZ140072159738QQihZ004QQcategoryZ1504QQrdZ1QQcmdZViewItem) Thanks, Al John, and The rules of thumb for DRO puck tuning go like this:

1. For a metallic tuning plug (above the puck top), the frequency rises, as the screw gets closer.
2. For a dielectric-tipped tuning plug (e.g., another puck or slice of puck on the tuning plug), frequency drops, as the screw gets closer.

So... to drop in frequency, you will need to add dielectric to the end of the tuning plug. That can be Teflon, another puck, or other low-loss material at microwave.

Certainly, to go from 10.230 to 10.224 is likely to be in tuning range of one of the above ideas. Output power will drop - and oscillations cease - if the added dielectric losses are too high.

Thomas, Nx1N Thomas A. Visel, CTONEuric Technologies, LLC 512.773-4447

For immediate release - Announcement for 2GHz and Up Contest Club Contest  
San Bernardino Microwave Society 2GHz and Up Club Contest for 2007

In the spirit of stimulating activity in the microwave bands, the San Bernardino Microwave Society (SBMS) is sponsoring a 2GHz and Up Club Contest.

For this year, 2007 the contest period runs from 6 a.m. May 12 to 8 p.m. May 13 local time.

This is a club competition in which members tally up their scores and add them with other members' scores to make up a club score.

2007 2GHz and Up World Wide Club Contest

Sponsored by the San Bernardino Microwave Society

#### 1. Object

Worldwide groups of amateurs (Clubs) work as many amateur stations in as many different locations as possible in the world on bands from 2GHz through Light.

#### 2. Date and Contest Period

Second weekend in May. The weekend begins at 6 a.m. local Saturday through 8 p.m. Sunday.

#### 3. Exchange

Six-character Maidenhead Locator; example DM04ww (see April 1994 QST, p. 86 or [www.arrl.org/locate/gridinfo.html](http://www.arrl.org/locate/gridinfo.html)). Signal report is optional.

#### 4. Miscellaneous

Scheduling contacts is both permissible and encouraged.

Stations are encouraged to operate from more than a single location. A station may be worked again on each band for additional credit after a change of location.

For purposes of the contest, a change of location is defined as a move of at least 16 km (10 miles).

A transmitter used to contact one or more stations may not be used subsequently under any other call during the

contest period with the exception for multiple licenses in the same family sharing the same equipment (family rule). The intent of this rule is to prohibit "manufactured" contacts.

#### 5. Scoring

Distance points: The distance in km between stations for each successfully completed QSO. One point per kilometer (eg., 10km is 10 points). QSO points: Count 100 QSO points for each unique call sign worked per band.

In making the distance calculations, a string (or ruler) and map may be used. However, calculations by computer program are preferred. Several such programs are available, including a BASIC program listing in The ARRL World Grid Locator Atlas. For purposes of making calculations, stations are defined as being located in the center of the 6-character locator sub-square (most computer programs make this assumption).

#### 6. Multipliers

- a.. 2GHz to 10GHz times 1
- b.. 24GHz = 2 times
- c.. 47GHz = 4 times
- d.. 76GHz and up = 8 times

#### 7. Bonus points

100 points bonus may be added for each unique call worked per band.

#### 8. Awards

1st place plaque and all club entries will receive a certificate, suitable for framing.

Send entries no later than 60 days after the contest to be considered.

Submit logs via regular mail only.

Pat Coker, N6RMJ, 40916 179th Street, Lancaster CA 93535, USA

For more information, rules and past scores see the SBMS web page at <http://www.ham-radio.com/sbms>

or contact Pat Coker, N6RMJ: [n6rmj@sbcglobal.net](mailto:n6rmj@sbcglobal.net)

Hello Microwavers,

I must sadly report the passing, on Sunday, of Harley Gabrielson - K6DS, of La Mesa. Harley has been active with our local SD Microwave Group and its earlier organization, led by Red Truax. Harley got his first amateur license in 1939, and was an electrical engineer. He worked for Philco Corporation, and in WWII he was in the Army working at Los Alamos on the Atomic Bomb Project. After the war he was active in many amateur radio areas, including a key role in the early OSCAR Satellites. When the FCC stopped giving the amateur license exams in 1984, Harley headed up the local exams as the Volunteer Examiner Coordinator, and continued in that role for many years. He was responsible to the FCC for verifying the credentials and the scheduling of the San Diego volunteer examiner teams, and therefore impacted the licensing of thousands who became amateur radio operators in this area.

He has long been active with the Amateur Radio Emergency Service, especially with the Hospital Emergency Communications system, participating as a responder to Alvarado Hospital during communications drills.

Harley was 83 years old, and will be missed by all of us. Services will be held tomorrow, Wednesday January 17th, at 4:00 PM at Funeraria Aztlán Mortuary, 7856 La Mesa Blvd, in La Mesa. K6DS --- Silent Key.

73s from Ed Munn, W6OYJ 858-453-4563



Bob, WA6VHS 47 GHz rig at the January SBMS meeting.





John, KJ6HZ 78 GHz rig shown at the January SBMS meeting.

Your project words could go here!!!!

Please generate some articles for the newsletter. Bill WA6QYR



**Juno KG6MQS** 47 GHz rig with surface mount parts.

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](mailto:bburns@ridgecrest.ca.us), or phone 760-375-8566. The newsletter is generated about the 15<sup>th</sup> 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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