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

January 2012 Edition

President Chris Shoaff, N9RIN 2911 Calle Heraldo San Clemente CA 92673 949-388-3121 cshoaff@yahoo.com
Vice President Brian Thorson, AF6NA 7467 Country Fair Dr. Corona CA 92880 909-226-2015 brian.thorson@sce.com
Recording Sec Walter Clark 824 Valley View 714-738-3686 walterclark@adelphia.net
Corresponding Sec Jeff Fort KN6VR 10245 White Road Phelan CA 92371 909-994-2232 jnjfort@Verizon.net
Treasurer Dick Bremer, WB6DNX 1664 Holly St Brea CA 92621 714-529-2800 rabremer@sbcglobal.net
Editor Bill Burns, WA6QYR 247 Rebel Rd Ridgecrest, CA 93555 760-375-8566 bburns@ridgenet.net
Webmaster Dave Glawson, WA6CGR 1644 N. Wilmington Blvd Wilmington, CA 90744 310-977-0916 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 remunn@earthlink.net.
SBMS webmaster and Lab manager Dave Glawson, WA6CGR 1644 N Wilmington Blvd Wilmington, CA 90744 310-977-0916

At the **January 5, 2012 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.

Last meeting- Brian AF6NA had a great talk about the progression of dish f/d ratios over the years between the military and the TVRO industry. Our visitors were Jerry Martes KD6JDJ from Los Alamitos and Art, Brian's dad from Spokane. Reminders of the Christmas party at the home of Dennis W6DQ where there will be opportunity prizes with some proceeds going to a Corona charity. Mel, WA6JBD suggested a 10 GHz beacon on San Miguel pointed to Arizona. Wayne, N6NB suggested a 3.4 GHz beacon on Heaps Pk. It was reminded that there are ATV signals on Heaps Pk at 3460 and 3480 MHz.

Scheduling:
January 21-23 ARRL January VHF Sweepstakes
June 9-10 ARRL June VHF QSO Party
August 4-5 ARRL August UHF Contest
August 18-19 ARRL 10 GHz and Up contest part 1
August 16-19, 2012 The 15th International EME Conference in Cambridge, England.
September 8-10 ARRL September VHF QSO Party
September 15-16 ARRL 10 GHz and Up Contest part 2
October 18-21 Microwave Update 2012 in Santa Clara Biltmore Hotel

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: 4 turret microscope $25; Carl Zeiss surveyors level $50; 16 element 2 meter skeleton slot antenna, $15 Bill WA6QYR bburns@ridgenet.net
For Sale- lots of microwave stuff. Let me know what you need. John KJ6HZ 951-288-1207.
Wanted- 30-40 dB 25-50w attenuator W6IEE.73@gmail.com

Activity reports— Dick, WB6DNXis looking for some 10 GHz 3w modules and found some 47 GHz parts at the swapmeet; Bill WA6QYR is back learning the code and playing with WSJT;Ed, W6OYJreported the the San Diego beacons are back on the air and Greg has a remote 10 GHz rig on the air; Walt had some water pipe parts to show for his radiatometer; Michelle W5NYV had a 1.25 GHz reflectometer to show; Tom, WB6UZZ had been working on a counter; Courtney, N5BF did some 160 meter work;Bill, N6MN didsome 10 GHz work; John, KJ6HZ did some EME work at K6JEY house; Gary, W6KVC had some antennas blown down; Jerry KD6JDJ reported on some weather satellite work; Wayne, N6NB lost his cabin and all his ham gear in at Tehachappi mountain fire; Mel, WA6JBD is buildinga remore base on 10 GHz; Marty N6VI talked about the world radio conference and the 3 GHz band; Dave, WA6CGR is building a 10 GHz rig for his wife to get on the air with; Jeff, KN6VR reported that the JPL rover that we saw during the MUD 2010 was on its way to the moon; Larry, K6HLH had done some tower work; Rein, W6SZ had some antennas blow down; Jason, W6IEE did some 900 MHz work; Brian, AF6NA has his father from Spokane at the meeting and had a conference phone call with Probest HB9AZN about his talk on ducting; ATV reports—Don K6BXT told us about mobile ATV; Robby K6EJZ; Gene K6BNN show us a 10 GHz rig in progress; Gary AF6HP signed in; there were several others on line that checked in.

Threads--

The November 2011 issue of Microwaves and RF has an article titled, “Where are they now?” They call it a “Company Genealogy”. It is a complication of old companies and how they’ve morphed or been bought and sold over the years. It maybe useful in seeking documenetation on old componets etc. 73 Jim wb4gcs@amsat.org.

On Dec 3, 2011, at 3:27 PM, Tyler wrote:

I'm trying to figure out what exactly to do (where to go) for the January VHF contest.

Tyler - After trying various strategies for selecting roving routes since I started roving, I have settled on these strategies in planning my routes. Your mileage may vary.

1. Be in your first operating position when the contest starts. Lots of guys show up at the beginning of contests to see if there is anything interesting going on and if there is they stay around, If not they work the guys on the calling frequency and go do something else. As a rover, you are interesting, and people will stay around or at least check back from time to time to work you in different grids. If you show up an hour late, you will miss lots of these ops.

2. Start at a grid corner or grid boundary that is near an area that is heavily populated with VHF/UHF operators. This will allow you to work lots of guys from the four grids without spending much time going from one grid to another. Guys will stay around to work you from the four grids if they know you will be there. Having piqued their interest, they will follow you from grid to grid.

3. Find out who the multi-multi stations are along your route and let them know where and when you will be in each grid. These guys usually do a good job of tracking rovers and will look for you as you move from grid to grid. Other stations will hear the multis working you and look for you as you move from grid to grid. The mulits are a rover's best friend.

4. You probably already know this, but moving from grid to grid north-south takes less time than moving east-west. Plan your trip mostly on a north to south path. Even plan on using the Friday before or the Monday after to get back home.

5. Save the rare grids for later in the trip. If people can't find you at the beginning of the rove, it won't matter if you are in a rare grid or not. Rare grids tend to be far removed from VHF activity, which is why they are rare. So if you visit a rare grid, you will likely have more people interested in working you, but fewer people capable of working you.

6. While it is nice to operate from a super location, like a mountain top, usually getting there takes time and that is time that takes away from operating. So I would only plan on one or two of these locations in a rove. In keeping with this philosophy, several less than perfect locations along a route that one travels to get from grid to grid are usually better than a single great location that one must travel to. even a small elevation gain, like a highway overpass can really help.

7. Remember that activating rare grids is really only significantly beneficial to the score of the fixed stations. Other than bragging rights, activating a rare grid does not contribute to the score of the rover any more than activating a common grid does. If you want to maximize your rover score, and you should if you want the Rover class to be competitive in its own right, then operate from locations where you can work the most people on the most bands. Operate from as many of these as you can. You will work the most people on the most bands from grids that are fairly common. There are no points for altruism. Enhancing the fixed station's scores by activating a rare grid often will reduce the maximum score you could achieve with an optimized I don't want to start a Rover rules discussion here, but the Rover rules are currently such that there is little incentive for rovers to activate rare grids where they can expect to work few people.

Other points: I find that small Yagis are not that much more difficult to travel with than Omni-directional antennas and are in general much more productive. So is operating in motion, particularly if you can have someone else drive. At the bare minimum monitor 144.2 in motion and stop to work someone when you hear something interesting.

I operate mostly in an area where VHF activity is sparse and I only have to go 45 minutes to get to a rare grid, so your strategy may vary. You have a very active HF community there, and I envy your ability to rove in that activity. If you are interested, could we swap rovers for a contest? :^)= - Duffey KK6MC/r
James Duffey KK6MC DM65tc Cedar Crest NM < jamesduffey@comcast.net >

Armando Bonilla wrote:
Hello all,
I need to measure 1296 MHz power, but I have at present a wattmeter
43 Bird, with an element for 400-1000 MHz. If you have tried to do so,
What error is expected? Is it possible to "recalibrate" the instrument with a simple series resistor to the meter? If no way, what wattmeter is recommended to measure 200 watts at that frequency?
I just got already from DB6NT the 2,5 watts transceiver, able to drive
a 200 watts PA...from them.
73 Armando TI2AEB

Armando, There is a chart published in the Bird manual on page 4-5 that lets you determine the error of measurement outside the specified freq. range.

Example: Making measurements on 1296 with 400-1000 MHz elements (stamped with max power followed by an E):
The chart shows a curve for a 100-250 MHz element. Divide 1300 MHz by 4 = 325 MHz and look up the roll off at 325-MHz on the chart using the 100w scale. It shows about 0.5-dB lower than actual power. Converting -0.5 dB to a ratio is 0.89.

An E-series element in the 100w power range will indicate power at
1296 about 10% low (100w will read 89w). The roll off beyond the freq. range is less extreme as one goes up in power rating so a 500E element shows almost no error at 1296, according to Bird's chart. I use a 50E and 100E element for measuring 1296 power and use the chart to make the needed corrections. I have a 10K (1100-1800

MHz) element that I use as my standard for calibrating and readings at 10w and it shows agreement with the offsets predicted by the chart. 50E = .79 and 100E = .89 at 1296
I use a 2500B element (50-125 MHz) for measuring power at 144-MHz. I see almost no error when compared to 500C element at 500w and only vary slight difference when compared to a 100C at 100w. Of course element accuracy falls off when measuring significantly below full scale (Bird mentions that in the manual). Also Bird rates the meter as only within 5% overall accuracy.
Bird elements can be adjusted internally if you want only to use the element on 1296. I am not prepared to tell you how to do this.
73, Ed - KL7UW, WD2XSH/45
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BP40IQ 500 KHz - 10-GHz www.kl7uw.com

A Boy Scout request for help with Radio Merit Badge comes to SBMS.

<Brian.Thorson@sce.com> wrote: > Dear Linda,
We have our monthly club meeting this Thursday at 7:00 PM in Corona. You and David would be welcome to attend if you don't mind sitting through a rather technical presentation on microwave reflector design and construction. Have you or David visited our website?

How old is David, by the way?

Please feel free to call my cell phone at 909-226-2015 to discuss or ask questions.

Brian C. Thorson
RF / EMF Specialist
EMF-Energy CS-EHS-OSBU
Voice: 909-226-2015

From: Linda Dang
To: Brian Thorson
Subject: Re: Radio Merit Badge Inquiry
Hi Brian!
Thank you so much for your prompt response! We have contacted KUCR and several other local college stations but have not received a response. To have David visit a local Amateur Radio club would be great! It would be a neat experience for him to gain some insight on other communicative devices besides iphones and computers!
Unfortunately his merit badge course is this Saturday, is there a way to visit the club during the weekday?
Thank you so much for your time!
Best, Linda

To: Brian Thorson
Subject: Re: Radio Merit Badge Inquiry

Good morning Brian! Thursday at 7:00 pm would be great! David is 12 years old and loves science, particularly astrophysics, thus learning about

microwave reflectors and its construction would absolutely fascinate him. David and I were looking at your club's website Sunday night and browsing through the Microwave contest pictures. Also, may we bring a camera to take pictures at the meeting which will be at the American Legion Hall in Corona?

Again, thank you so much for your help!
Best regards, Linda

No problem, Linda.
The SBMS will be pleased to welcome you and David.

I would also like to greet David's scout master if he is willing to be contacted. SBMS is a club with many senior and retired engineers who frequently mentor younger members in their radio/wireless communications interests. A partnership with the BSA local chapters could be mutually beneficial.
Brian C. Thorson

Subject: Re: Radio Merit Badge Inquiry
Brian: I just wanted to thank you and all of SBMS for having us at the meeting last night. Everyone was so welcoming! It was an absolutely fascinating experience; my only regret is that we couldn't stay for the whole meeting. David was absolutely intrigued by the information he gathered in his notes and I know he often feels that his honors science courses are not challenging enough and this has open a new door of interest to him. Pat made a great suggestion about searching for HAM courses for David to take. I believe he surpassed the information he needed for his pre-requisite requirement, I just sent the pictures last night to Costco and will be picking them up later this evening. If you like, I could forward those pictures via email to share on the club's SBMS website. I know the highlight of my brother's evening was being able to communicate with Ron (I believe was his name) and seeing himself on the monitors. Again, thank you and SBMS for such a neat experience.
Best Regards, Linda

Looks like we were successful at helping the Dang family.
Brian C. Thorson AF6NA

And special kudos to Bill for his one on one work with the scout and the ATV gang for making him a TV star. Well done!!!! I didn't see Gary and Don on the distribution, so please be sure to thank them for their attention to the scouting family and for putting them on TV. Once again, that aspect of our meeting has shown its value in an unexpected way.
As an aside, I think we had as many internet check-ins as I've ever seen. That link seems to be serving a large number of members and visitors.

John KJ6HZ

San Bernardino Microwave Society 2 GHz and Up Club Contest for 2012

In the spirit of stimulating activity in the microwave bands, the San Bernardino Microwave Society (SBMS) is sponsoring a 2 GHz and Up Club Contest.
For this year, the 2012 contest period runs from 6 a.m. Saturday May 5 to 8 p.m. Sunday May6 local time.

1. Objective

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

2. Date and contest period

The occurs on the first weekend in May preceding Mothers Day. This weekend begins at 6 a.m. local Saturday through 8 p.m. Sunday.

3. Exchange

Six-character Maidenhead Locator; example DM04ww (see April 1`994 QST, p.86 or www.arrl.org/locate/gridinfo.html). Signal reports are 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 (e.g., 10 km is 10 points).
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. 2 GHz = 2 times

b. 3 GHz to 10 GHz times 1

c. 24 GHz = 2 times

d. 47 GHz = 4times

e. 76GHz and up = 8 times

7. Bonus points

100 points for each unique call sign worked per band.

8. Awards

A 1st place plaque. 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 to:
William Burns, WA6QYR
247 Rebel Road
Ridgecrest, CA 93555
For more information, rules and past scores see the SBMS web page at http://www.ham-radio.com/sbms

10 GHz WSPR Test in Southern California Dec. 11 2011.

On Dec. 11 2011 K6HLH and W6SZ made a first test to use the WSPR beacon software on 10 GHz.

Though, certainly not the first time on 10 GHz, WSPR was new for the San Bernardino Microwave Society.

After a planning period to find a suitable path, the final result was a relative easy path.

Signal levels were moderate, though low transmitter outputs were applied.

The WSPR software has been developed by K1JT, Joe Taylor and is basically used for Weak Signal Propagation Reporting. Since K1JT published the protocol, it has been mostly used on the HF bands, with a most frequent use, at 10 MHz. Over the last couple of years the application has moved upwards in the amateur frequency bands. It's now being used on 6 and 2 meter on a regular basis. (Mostly outside the US, so far at least)

The method is basically a beacon mode where users send periodically a message of the transmitting station stating, call sign, Grid Square and output level in dBm. Participating receiving stations send signal reports to a central WEB site where the signal reports are processed, stored and made available to the amateur community at large (http://wsprnet.org/drupal/)

WSPRNET.org provides information about activity levels per frequency band, generates graphical representations of which station is receiving who and how strong. The program provides propagation information, reception results of transmissions and so on.

WSPR transmissions are done in narrow band segments, 200 Hz wide, a list of used frequencies for the HF bands is available as part of the program and are listed on the internet and WSPR Net. The signals used for WSPR transmissions are only a few Hz in bandwidth. Many signals can be present simultaneously in the 200 Hz wide WSPR bands.

The use at higher frequencies is due to the narrow signal bandwidth an ever bigger challenge.

The equipment used in the test is basically standard as in use in most of the present Amateur narrow band 10 GHz equipment. The WSPR software generates audio information and processes received audio in order to decode the incoming messages. At present WSPRnet has no provisions to receive and process the microwave bands, 10 GHz included.

The test showed that the used equipment had sufficient frequency stability to decode the messages.

Equipment used in this test was a Flex5000 as IF radio and a DB6NT transverter on one side, a FT817 as IF radio and a Qualcomm tranverter was used on the other side. The Qualcomm used a double oven 10 MHz source, the Flex 5000 used a GPS disciplined 10 MHz source as frequency determining element. Both stations used GPS computer time synchronization. W6SZ had a GPS

module correcting the laptop computer clock; no internet was available at the site.

The main reason for the test was to gain experience in making the link work in a predetermined frequency band 10368.305 MHz and prove that the used radios had sufficient frequency stability.

K6HLH used his home station, W6SZ worked in a field location.

Further tests will be done to show the weak signal properties of the WSJTxx modes and its abilities for working DX.

The transmission was point to point. In this test. No special microwave propagation modes were used or studied. In follow up tests bounced signals will be studies and propagation over larger distances will be explored.

The use of the WSPR protocol might promote WSJTxx on the higher microwave bands. Perhaps an application could be to equip present beacons with a time shared WSPR ID system. This could enhance the beacon's usability over longer distances.

The WSJT and its increased communication properties come for a price, time. The method is not well suited for contesting or roving. Though if contest rules were modified for DX results, it could be a valuable addition in VHF/UHF and microwave Terrestrial communication even in contesting.

Some time ago, Af6NA and W6SZ made a contact using the WSJT65 mode A. This was a QSO where mountain bouncing was used on each side. AF6NA pointing south, W6SZ pointing north. (Opposite) Decoding of the messages worked flawless in that test.

References:

http://physics.princeton.edu/pulsar/K1JT/wspr.html

http://wsprnet.org/drupal/

http://www.youtube.com/watch?v=nuqxdWy71kk

http://www.youtube.com/watch?v=e_OPwpVyaVo

http://www.g4jnt.com/DDSVHFBeaconDriver.pdf

http://www.g4jnt.com/Coding%5CWSPR_Coding_Process.pdf

http://vk3hz.net/aep/AEP_on_10GHz.pdf

http://vk3hz.net/aep/AEP_on_10GHz_part_2.pdf

12/15/2011 Rein

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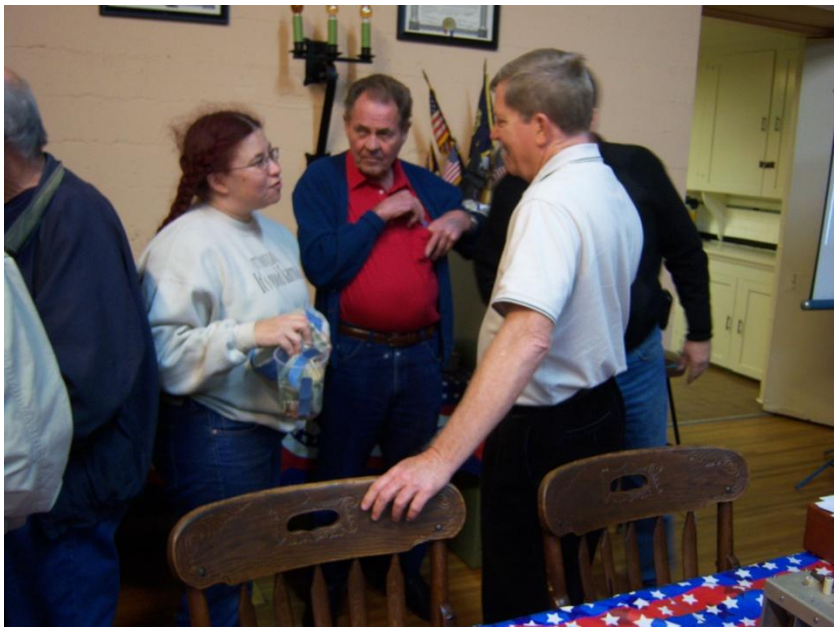
Marty N6VI talks with Art Thorson, Brain, AF6NA and Jeff, KN6VR at the December SBMS meeting.



Tisza, KI6DBR 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@ridgenet.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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