



SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1955

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

January 2015 Newsletter on the Activities of the San Bernardino Microwave Society

Walter Clark, Editor

Tech Talk for the January 8th Meeting

"Working Hawaii on VHF and Up 1957 to 2014 – An Eye Witness Account"

Wayne Overbeck, N6NB, is a sought-after speaker in the Amateur Radio community. A retired professor from California State University in Fullerton, he has too many accomplishments to mention in a short introduction.

The "Quagi" antenna, a combination of a quad and a yagi, was invented and developed in Wayne's back yard in 1972 and is still a favorite of VHF / UHF Amateurs all over the world. In 1996, Wayne's name appeared on the FCC's OET-65 bulletin as one of the committee members who developed the U.S. radio frequency safety standards. He integrated and mass-produced a "tool-box transverter" system that covers the Amateur bands from 6 meters to 10 GHz. Wayne continues to inspire us in Amateur microwave and VHF/UHF as he leads Hams in local, interstate and international radio contest outings. An attorney and member of the California BAR since 1975, Wayne brings broad knowledge and experience to the San Bernardino Microwave Society.



If you can't make it: watch online: http://www.batc.tv/ch_live.php?ch=2&id=139

Activities at the December Meeting of the SBMS

(that would be of interest to the general ham radio community)

Presiding: President Chris Shoaff (N9RIN)

(19 in attendance... 17 last month)

Guests

Or Members Not Seen In a Long Time

Edgar Shupe (KK6NTZ) is back. (Licensed in July 2014.)

Old Business

- Pat Coker (N6RMJ)
2015 Microwave Update — no new developments.
- Doug Millar (K6JEY)
Complimented the newsletter production and especially likes announcements of the Tech Talks.
- Continuing discussion about supplementing Gary Heston's video coverage with the consideration of TinyChat into SBMS meetings. The purpose here is for wider regional participation. TinyChat would promote interaction, video and audio. This is better than the current internet chat room. A high bandwidth (4G) internet connection would be needed.
 - Dennis Kidder suggested orchestrating a demo at a near future meeting. Suggests using a laptop with speakers and an air card.
 - Mel Swanson suggested that the business meeting not be broadcast (same as ATV), just activity reports and Tech Talk.

New Business

- The SBMS Christmas Party will be at Dennis Kidder's (W6DQ) Fullerton QTH for the last (last) time

Courtney Duncan (N5BF), Recording Secretary

What Our Members Are Working On

- **Chris Shoaff N9RIN San Clemente**

His microwave activity near zero due to vacation traveling. His wife is having him travel: Italy Athens, Istanbul, Naples.

- **Courtney Duncan N5BF (Eagle Rock)**

has been doing exactly what Wayne has been doing, and on other HF bands - 20/12/10/40/80. He leaves JT65 listening on HF and collect half QSOs during the day and night.

- He had a noise problem and got help from Doug's spectrum analyzer. With it, he walked around looking for a noise source on 1296. He found it. He removed a relay and the DC driver stuff and diode for it and the noise vanished.
- Went to Doug's house once, bought something. He now, like most of us, belongs to the BoughtFromDoug club. The BFD club.
- Doug measured his MKU132LNAah and got the same noise figure that the data sheet from Khune did and the same thing Courtney got with his Sabin noise source he built years ago and had calibrated by the company.
- He (Courtney) built up a switch box for all the devices that have to T/R switch during EME and other QSOs. Everything working but at fixed elevation 40 degrees.
- He still need to get the DSP-10 back into operation with the improved setup. He hasn't seen anything yet, including ON0EME, but suspect trees, wet trees, as the main problem so far. He has now taken first cut at VK3UM analysis and predict -33 dB for self-echo. He Predicts ON0EME at -16 which should be very visible. Will be at K6JEY (Doug's) tomorrow night for the ARRL EME event.
- He asked if there was 2 m and .23 m activity on JT modes. Rein said there was a big digital net on 2 meters where people run JT modes. N3IZN participates. They study propagation.

- **Ed Munn W6OYJ (San Diego) Reporting on the Activities of the San Diego Group (They normally meet 3rd Monday at Karry Banke's house.)**

San Diego microwave group activity: Monday night weekly net on the Palomar 146.73 repeater. December 13 meeting Christmas Party with white elephant gift exchange of microwave items that would be better off in somebody else's shack. About a 100 lbs. worth but no items were to be left at Kerry Banke's (N6IZW) home in La Mesa. Banke is working on ISS ATV for school children.

- Ed Munn thought someone at this meeting was bringing him some 2.3 GHz filters. Mel thinks it was him. Robin said that Cactus had a couple of crates of such filters. KF6C is developing miniature IF transceiver for 2m band.
- Art McBride (Vista) is under treatment for cancer but should be back on the air in January.

- Greg Baily who built their beacons is working on 10' dish with computer control positioning for EME.
- Ed's progress just got new computer to do Email. Finally paid for Word, Excel etc. on new computer. He has trouble getting help from Microsoft. He got open office to work. Doug and Ed gave advice.
- Bran Komar is working on a miniature 2 meter transceiver. His son just got his General.
- **Walter Clark (Fullerton)**
Has been doing a lot of work with 2.4 GHz WiFi modules. Data sending modules work like a long USB cable. He will be giving a talk on this at the Fullerton radio club in January. His other hobby is R/C airplanes and wants to develop equipment to send back motor RPM, motor current, altitude and air speed. He demonstrated an XBee link from a protoboard controlling remote LEDs on parallel channels. Works up to a mile on 60 mW. He showed several 2.4 GHz antennas for the XBee. They also have the ability to do mesh networking and with a hot spot 2.4 to cellphone data can go to the internet and you can get it from an XBee website.
- **Dennis Kidder W6DQ (Inyokern/Fullerton)**
His book, "Arduino Projects for Amateur Radio", is published and he passed one around. Authors are Dr. Jack Purdum W8TEE and Dennis Kidder W6DQ.
 - Now there is a full blown Arduino simulator that runs on a PC with a full blown debugger - something you can't do on the platform itself. They don't have single step debugger in their IDE, but now it exists in this PC simulator.
 - He moved 100 boxes as of December meeting date.
 - Plane Wave Telescope Company wants to do a star party at Dennis Inyokern house
- **Eddie, KK6NTZ:**
came to an SBMS meeting for the first time about four months ago. Another hobby is flying, currently taking lessons.
 - He offered the GHzDudes.com domain if we're interested.
- **Wayne Overbeck N6NB (Tustin)**
is trying to get into the 21st century with JT65 interfaced on all his stuff. That's: 2.4, 3.5, 5.7, and 10 GHz on his station in Panorama Heights. He's been talking to Larry Johnston about trying schedules using digital modes on these bands.
 - He's practicing on JT-65HF on 40 meters late at night and checks the reverse beacon reporter online to see what automated stations he's been spotted by.
- **Bill McNally N6MN (Seal Beach)**
 - Microwave activity has been working on X-Band radar on the Battleship Iowa that hasn't been turned on in years. Plans to fire it up sometime. Two other radars that will never get working. 800 MHz radar is missing the klystron and will probably never be refurbished.

- He found a 10 GHz “echo box” on E-Bay (reminiscing from his experience 30 years ago). This provides a simple way of measuring sensitive of system using directional coupler.
- **Doug Millar K6JEY (Long Beach)**
will be working EME (the “first Earth satellite”) tomorrow night.
 - howed TCXO on sale for FT-817 on E-Bay for \$26. (Yaseau’s TCXO is \$100.) It can do .1 PPM. All three of his 817’s have this - at 432 they can be off and drift badly otherwise.
 - He showed a slug for Bird 4410 wattmeter. Each slug does 7 ranges. 100 W. .1, .3, 1, 3, 10, 30, 100 on 7 scales. Six slugs from 400 KHz to 2.4 GHz.
 - JEY labs (His callsign, get it?) can now do power measurements with this Bird. 5% of reading wattmeter (as opposed to 5% of full scale which is worse).
 - He passed around a one piece screwdriver tool, \$5.95 on E-Bay.
 - And a \$17 Korean condenser microphone. He claims they did a good in terms of low noise.
 - He had problems doing noise figure measurements with RG-174 cable. It turned out to be just bad grounding. He used a good RG58 and it all got right again. Mel suggested to also measure actual temperature.
- **Ed Murashie WX6DX**
got his house on the Santa Ana Historical Properties list.
 - He fixed up an 8672a signal generator and other test equipment.
 - He told us about a new Russian weather satellite with LRPT format. People are using SDR dongle to record data at 137 MHz then put it through free software to get images.
- **Jim Blum KK6MXP Corona**
Not doing much but a ton of reading, such as articles on quads.
 - Trying to get going on Linux. He listens to tech-net every morning for advice.
 - He’s also working on antennas for 2 meters and 440.
- **Mel Swanberg WA6JBD (Upland)**
His new toy last month was an HP 719C network analyzer for up to 13 GHz.
 - He spent a day tuning up some transmitter combiners for a Cactus project. Also bought calibration kit for it. There is a guy in England who sells calibration kits rated up to 7 GHz for about \$450. He builds them himself and sends you all the data. Doug suggested bringing it to a meeting and giving a talk on it. People could bring stuff they wanted measured.
- **Jeff Fort KN6VR (Phelan)**
No microwave activity. New house is occupying all his time.

- **Frank Kromann AG6QV (Trabuco Canyon)**

got a new SWR meter for 900 - 2.4 GHz for his birthday last Monday. He checked a 23 cm antenna with it and determined that the antenna was no good.

- **Pat Coker N6RMJ (Lake Los Angeles)**

Was in a car wreck on the freeway this month and getting it fixed. It was a rather bizarre crash having to do with a trailer wheel that came loose.

- **Rein Smit W6SZ (Alta Loma)**

said he had no microwave activity but did spend some time listening to satellites on 432 and 2 meters.

- He got the 8' offset dish back from Pat this morning. It comes with a mount but no feed and is very heavy, hard to support and move. He plans to build a 10 GHz EME station. Would need 10 W and might borrow such an amplifier.
 - He bought a quadcopter to put a wire in a tree. Got an ad from the same people - planar antenna to follow the quadcopter for audio and video. \$84. There's a 20 dB gain antenna on 5 GHz with all the tracking mechanisms. Dennis and Doug said to put this information on the reflector.
-

Upcoming Events (Identified by Marty Woll N6VI)

- Jan. 24-25: ARRL January VHF Contest – includes all microwave bands
- May 2-3: SBMS 2 GHz & Up Contest
- May 16-17: Maker Faire, San Mateo CA
- June 13-14: ARRL June VHF Contest –all microwave bands
- Aug. 1-2: ARRL UHF Contest – includes all microwave bands
- August 15-16: ARRL 10 GHz & Up Contest – 1st weekend
- Sept. 11-13: ARRL Southwestern Division Convention, Torrance CA (can you offer a microwave program?)
- Sept. 12-13: ARRL September VHF Contest – includes all microwave bands
- September 19-20: ARRL 10 GHz & Up Contest – 2nd weekend
- Oct. 16-18 Microwave Update (SBMS-sponsored), San Diego
- Oct. (TBD): ARRL EME Contest – 2.3 GHz & Up
- Nov. (TBD): ARRL EME Contest – 50 through 1296 MHz – 1st weekend
- Dec. (TBD): ARRL EME Contest – 50 through 1296 MHz – 2nd weekend

Anyone, (not just SBMS members) . . . if you know of any future 1 GHz and above amateur radio event, please send date and description to the editor:
walterclark@roadrunner.com

It looks like Dennis W6DQ really means it. Here's the room we are all very familiar with . . .



And look, there's still radios on the shelf left to pack up.

Last Month's Tech Talk:

"Solectra - An Integrated 10 GHz Radio Design - **Frank Kromann (AG6QV / OZ1GPI)**. Rig does not use a commercial IF radio. Can operate from a solar panel.

Meteor Detection

From Jim Sky of SARA is the following link for using the RTL-SDR dongle to detect meteors with the Graves Radar on 143 MHz.

<http://amsat-uk.org/2014/12/24/using-rtl-sdr-detect-meteors/>

In response to this editor's request for what microwave bands are most appropriate for Amateur Radio Astronomy, David Lonard responded with this:

Walter,

I would say that most SARA people concentrate their interests on 1420 MHz (21 cm), where the low hanging fruit is; hydrogen alpha emission. But interferometry is something that evokes particularly strong interest for SARA. While the moon and the sun are easy targets at 10 GHz, (black body radiance) the rest of the sky is frustratingly quiet, so not much else can be detected without a huge dish. Interferometry is technically tough, which stops a lot of people, but it can really open up a lot of possibilities for amateurs interested in either ham or RA applications.

My interferometer is remarkably good at determining the direction of terrestrial signals working as 'diversity radio' system. Since it is frequency agile, it can 'see' the angle of arrival of individual radio signals which is really interesting in the ham bands.

Want to get into Radio Astronomy?

Radio Astronomy Software Defined Radio (RASDR) is an Open Hardware project undertaken by members of SARA (Society of Amateur Radio Astronomers.) They will be developing a low cost, (a couple of hundred bucks) high performance software defined receiver. For more information on RASDR:

<http://www.radio-astronomy.org/node/189>

From Edmund Harfmann of SARA

The Astronomical League (AL) is starting a radio astronomy observing program. If you observe one category, you get a Bronze certificate. Silver pin is two categories with one being observed with home brew equipment. Gold pin level is at least four categories.

Categories include

- 1) SID
- 2) Sun (aka IBT)
- 3) Jupiter (aka Radio Jove)
- 4) Meteor backscatter
- 5) Galactic radio sources

For more information: <http://www.astroleague.org/programs/radio-astronomy-observing-program>

- The SBMS newsletter is to keep member informed on current activities of the “active” members; the members that come to the meetings or use ATV to report in.
- The website is for articles and all activities of the past.
- But questions or even bragging is for the SBMS Reflector. Send your email message to: sbms@ham-radio.com. More than 80 people will see your question or your bragging. (To sign up go to: <http://lists.altadena.net/mailman/listinfo/sbms>.)

Gary Heston's ATV Mobile Studio

Not only can you watch our meetings live (well delayed by 240 milliseconds) You chat to other viewers about what you are watching (or anything else.) Enter the chat room by clicking on the white space on the right of the website described below.

Just as a reminder, this is how you watch SBMS meetings from home:

http://www.batc.tv/ch_live.php?ch=2&id=139

Better yet memorize the following

Keywords: BATC TV

and use Google

The TV part is easy to remember. Think of the BATC as batch without the h. It's a British website (that's the B) Once you are there, on the left, you have to pick a stream. The stream to choose is:

W6ATN.

Memorize W6ATN as ATN in California. W6ATN is the club call sign for six ATV repeaters that are a part of the Amateur Television Network in Southern California. (ATN-CA)

Gary Heston's mobile studio beams its signal to the ATN repeater on Santiago Peak which is provided by: Roland Hoffman, KC6JPG



Checking in Those Watching on Gary W6KVC's ATV.

- **Gordo, WB6NOA: Great meeting! Will be in Quartzite week of January 18**
- **KE6BXT, Don, Mission Viejo**
- **WA6EJO, Steve, Ventura**

Microwave Mystery Gizmo of the Month



If you would like to discuss this, use the SBMS Reflector by sending a letter to the following email address:

SBMS@lists.altadena.net

If you don't have an account sign up at this website:

sbms@ham-radio.com

Microwave Mystery Gizmo of the . . .

Previous Month



This is a microwave dish feed. The brass flange mounts on the center of the dish; the vertex. The waveguide is round (about $\frac{1}{4}$ " ID) and terminates at the base of the solid plastic cone where the radiation spreads due to diffraction and strikes an aluminized convex surface. The curvature of that

surface is probably just right for whatever dish it was to be mounted on. It could be that the angle of the cone was chosen so there was no refraction there. (The radiation emerges at right angles to that surface.) The dish would be illuminated by radiation that would appear to becoming from a point source an inch or so in front of that cone.

The foil seems to be covering a foam material around the waveguide. Most feeds are in the beam and coated with microwave absorbing material, but this configuration would have the waveguide completely in the shadow of the aluminized surface. It's probably not necessary.

The advantage of this feed over the shepherd's crook is that there is a minimum of obscuration. Less even than a Cassegrain. Note that this really isn't a Cass even though there's a convex secondary. Well it's not to an optical engineer, anyway. A true Cassegrain when used as an imaging device increases the F/number of the dish. The focal point is folded to be near the vertex of the dish and the secondary is much larger than the secondary in the picture above.

Needs, Wants and For Sale (Updated 28 October)

- **For Sale from Chris Shoaff:** N9RIN cshoaff@yahoo.com
 - 30w 1296 MHz PA kit \$50 + \$5 for US shipping
- **For Sale from Mel Swanberg:** wa6jbd@verizon.net
 - HP 141T w/1200 MHz Plug-in And 3 18 GHz Plug-ins. Make offer, so cal local only.
- **Wanted by Jim Blum:** tenbakerst@aol.com
 - Source material; papers; on microwave and microwave construction.
 - Info on digital modes for microwave (WSPR, etc.) Info on beacons/beacon construction
- **For Sale from Bill Burns:** Bill will only rarely come to the meetings, so if you want any of this, please contact him by email at . . . bburns@mediacombb.net)
His address is: 247 Rebel Road Ridgecrest CA 93555 and phone: 760-375-8566
 - 8 watt 5 GHz TWT's with power supplies \$50 each
 - copper wire enamel coated #14 many feet coils \$10 each (coils are like a foot in diameter and maybe a dozen turns or so...30 or 40 ft long wire)
- **For Sale from Doug Millar (drzarkof56@yahoo.com):**
 - a Rohde and Schwarz 309 10-18GHz Signal Generator in perfect shape. It is digitally synthesized and has a pull out instruction card. It has internal modulation and will also sweep. Will accept \$900.
 - I also have an HP432 power meter, cable and head (478) in working order for \$100



Member Ads

Sixty North Electronics

Kits Made by member KL7UW

Let Ed Cole assemble your Down East Microwave kit. For kits in stock, he can deliver an assembled unit to your custom design preferences within 30-days of a paid order. **His prices are the same as you pay DEMI for an assembled transverter, but much quicker delivery time. And comes with 90-day written warrantee on labor (guaranteed to work)!**

Shipping for a transverter is typically that of medium-size flat-rate Priority Mail anywhere in the USA.

For examples of his work click on... <http://www.kl7uw.com/kits.htm>
Contact him at kl7uw@acsalaska.net

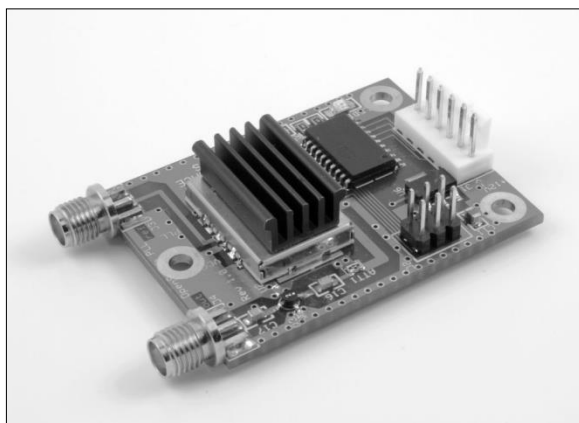
Member Ads Continued



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- ⤴ Low phase noise, Buffered output
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- ⤴ Open Source code and design, made to be modified
- ⤴ 2" x 1.5", 12V @ 140 mA typical

Available at <http://reactancelabs.com>



If you are a member you can have a picture ad here yourself.
For the time being this service is free.
eMail editor at: WalterClark@roadrunner.com

About SBMS

The San Bernardino Microwave Society is a technical amateur radio club affiliated with the ARRL having a membership of over 90 amateurs. The focus of the club is microwave activities in the Southern California. ***Our sister club is San Diego Microwave Group (SDMG). At least one meeting a year are joint meetings.*** SBMS dues are \$15 per year, which includes a badge and that's about it. The dues are more in the way of a donation to pay for outreach things such as video portals, a bank account, and rent for the building. When to pay is not a matter of remembering. The Corresponding Secretary will contact you by email and will then hound you like your own personal PBS telethon. Dues can be handed to the treasurer at the meeting, or mailed to the address of the treasurer listed in the banner below.

Meetings are first Thursday of the month, 7:00 PM at the American Legion Hall, Corona. For carpooling from North Orange County call Walter Clark @ 714 882-9647

The Reflector (SBMS Group Email)

The most active method of information exchange is our group email called the SBMS Reflector. You don't need to be an SBMS member to participate. To subscribe fill out the form at the website: <http://lists.altadena.net/mailman/listinfo/sbms> (If you are getting email on the SBMS Reflector now, and you want to write your own message, pull up a recently received message, click on "Reply to List." Don't forget to change the subject line and delete all previous text as appropriate.)

The SBMS Website and Newsletter

The SBMS Reflector is ephemeral. There's no record kept. The Newsletter has a slightly longer life. It is sent to members and past issues are recorded in the website. It's URL is: <http://www.ham-radio.com/sbms/> You don't have to memorize that or write it down, just enter SBMS into any internet search engine.

Newsletter: Walter Clark: walterClark@roadrunner.com

Website: Rein Smit: rein0zn@ix.netcom.com

The newsletter is created about the middle of the month and broadcast as a link inside an eMail letter to the members. This is mailed to you on the weekend prior to each meeting. SBMS Newsletter and website material can be copied as long as SBMS is identified as source.

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