

Meeting for June: "Fri 24th" at the MCL Cafeteria in Kettering June/July 2011

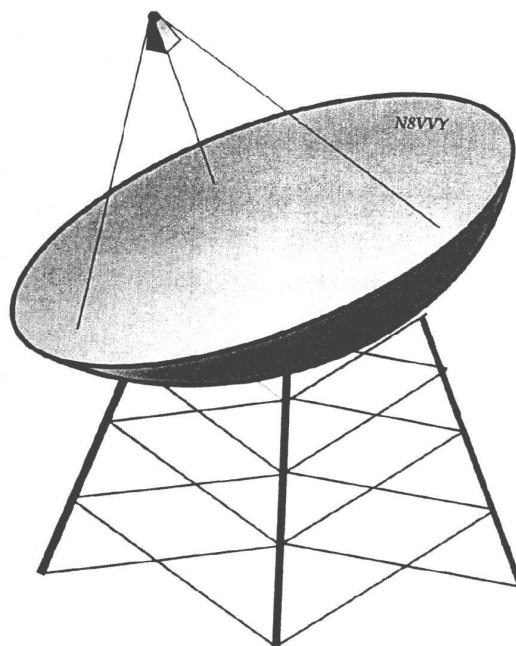
ANOMALOUS PROPAGATION

Newsletter: *The Midwest VHF/UHF Society*

Editors:

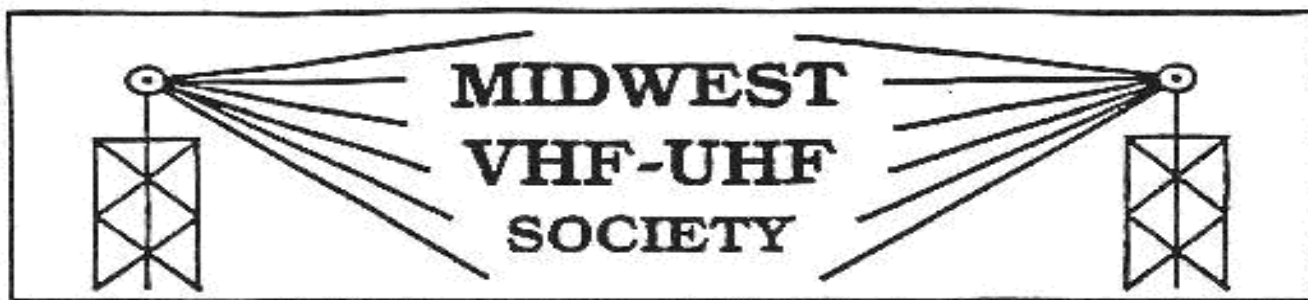
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Annual Society membership is \$ 12.00. Please
make checks payable to Gerd Schrick



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June/July 2011

Upcoming Meeting Fri 22nd of April (6:30PM)

New Meeting Place, Earlier Time

MCL Cafeteria on 4485 Far Hills Av (Rt. 48) in Kettering.

Going South from Dayton drive past the Town and Country Shopping Center on your left.
At the next light turn right, then left into a small shopping center. MCL is at the end on the right.

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Upcoming Events

Field Day Sat/Sun 25/26 June- 2011

Central States VHF Conference Jul 29, 30 2011 Irving Texas

<http://www.csvhfs.org/>

The Central States VHF Society, Inc. (CSVHFS) is a not-for-profit organization chartered in the state of Missouri. It was begun in the mid-1960s to foster amateur radio operation on the bands above 50 MHz. Membership currently numbers about 300, principally in the Midwest states. However, it has members in states from the Atlantic Coast to the West Coast as well as Canada and several foreign countries.

The CSVHFS holds a Technical Conference once a year. The goal of the conference is to raise the technical level of amateurs by providing a forum for presenting technical papers relating to VHF, UHF, and Microwave, to provide a focal point for the discussion on operating practices and procedures, on exploration of modes such as EME, MS, FAI, E-skip, etc. and other topics that promote operation on Amateur bands above 50MHz.

Proceedings from these conferences are published by the ARRL and can be purchased from the League.

DE N8ZM

Lots to report this month, so here goes...

Hamvention was a blast, you could even use the word eruption, considering the broken pipe incident in the Flea Market, but all in all, the show went well. The beacons were running from the roof, there were a lot of visitors to the MVUS Booth, the balloon launch went off smoothly (we recovered all of it this year!), and the VHF/Microwave forum was very well attended. Did I miss anything? Oh, and the weather was absolutely perfect for 3 days in a row. Considering all of the violent weather effects this spring, that is almost a miracle, especially when you consider that it usually rains at least once during the show

The credit for all this goes to Mike, W8RKO, Gerd, WB8IFM, John, N8VZW, Ed, WR8A, Steve, K8UD, Mike, N8QHV, and Red, W8ULC for their time and effort and dedication to MVUS. Hopefully I didn't leave anyone out.

The Friday after Hamvention we had our usual monthly meeting at the MCL Cafeteria, which is, by the way, working out very well for us. The food is good and the amount spent can be as much or as little as you wish. The room is very quiet (even if we are not) with AC outlets available, and the manager and staff do a good job keeping our glasses filled. I hope that you all are remembering to tip the staff well for their efforts.

Anyway, at that meeting we discussed our several projects. The first one was the plan to host the 2012 CSVHF Conference. After some deliberation, we decided that we really were not up to the task in terms of having enough people to carry it out, so I have notified the CSVHF powers-that-be that we are bowing out, and apologized for any inconvenience that may cause them. They graciously accepted our notification and said they felt that they still had time to find someone. I am disappointed, but I do believe it was the right decision for us.

The 1296 beacon antenna is closer to being installed, with the current delay having to do with the diplexers that will be installed on the tower for the VHF and UHF repeaters, allowing them to share feed lines and possibly antennas (I haven't seen the system drawings, so can't comment in detail about what gadget is hooked to which thingy). As the tower guy really only wants to make one trip up, we have to wait for those items before our beacon antenna can be installed. Word on the street is that the needed parts will be arriving very soon.

Mike, N8QHV, has been pushing ahead with the 900 MHz radio project, but tells me that the supply of radios on eBay has dried up for the moment. Hopefully that is a temporary situation and we can move forward with getting enough radios converted for every one who wants one and also get a repeater on the air.

The latest word that I have on the translator project is that the 70 cm antenna needs to be rebuilt or replaced. The original was a prototype that is not intended for long-term outdoor use, but I understand that there is a new version on the way. Gerd may have some words to add elsewhere.

Finally, I missed the deadline of having 20 noise sources ready for sale at Hamvention due to problems with my test equipment. However, I must recognize the efforts of Mike, W8RKO, Bruce, ND8I, Bruce, KA8EDE, and Steve, K8UD, to get the parts collected and built. If I can get my Noise Figure System to properly align, we can have these puppies calibrated to 10 GHz! I have had the test gear sitting in the family room for the last several weeks (don't try this at home without prior management approval) in an effort to get the problem resolved, but work and family activities have had to get higher priority. I hope that will settle down soon, but it is not likely before our June meeting.

Speaking of which, it is on the 24th this month, once again at the MCL. See you there!

73,Tom, N8ZM.

This and That 6-11

Shrinking Coffee Cans. Not so, the three-pound can is still the same size but the contents shrunk from 3 lbs to 2 lbs 2 ½ oz (-28%). The 1-pound can now contains just 11.3 oz (-29%). [Gerd, WB8IFM]

Push Movers. Yes, you can still find them. The price went up from the \$30 I paid back in 1964 to \$ 79 now, but you can spend \$200 and cut 45,7cm versus the mere 16" (41cm) because this machine is "precision engineered and cuts the grass without the blade touching". Magic has descended on grass cutting. [Gerd, WB8IFM]

Adopt a Pothole. The potholes were so bad in Baltimore in the spring of 1984 that then-mayor William Donald Schaefer suggested an "Adopt a Pothole" program to which people could contribute. [Baltimore Messenger, 3-24-05]

Villain. "One may smile, and smile, and be a villain." [William Shakespeare]

Copper. If the rest of the world were to consume at just half the American per capita rate (1.386 pounds a year), we'd exhaust all known copper reserves within just 38 years. [Newsweek, 5-2-11]

Cooking Time. On average people of the world spend 50 minutes per day for cooking. The Turks spend with 74 minutes the longest time and the Americans with just 30 minutes the least amount of time. But there are more than 500 cooking shows in the US on TV and cable. [Brian Williams, NBC Evening News, 4-2011]

Checking Your Mail is nothing new. Russian composer Shostakovich regularly sent cards to himself to test how well the postal service was working. People do it now with their e-mail. [From Wikipedia, Shostakovich lived from 1906 to 1975]

Hitting Delete? For anyone who ever came face-to-face with a blank sheet of paper and an editor's deadline, no computer ever invented could provide the cathartic satisfaction of ripping a piece of paper out of a typewriter carriage, crumbling it into a ball and hurling it across the room in the general direction of a waste basket. --- Clicking "delete" doesn't even come close to it. [D.L. Stewart]

California Weather. Alain Norris, 37, says that given the economic collapse around him, he's been lucky just to have a job. But for now, he says, "really, the only thing I like about this place is the weather." [Michael Zielenziger]

Magnetic North. Up to 40 miles/year is the distance that magnetic north, located at the top of the earth, is shifting toward Russia; the point's position is in constant movement. [Time - March 7-2011]

Engineering. I'm particularly adept at making mistakes-it's a necessity as an engineer. Each iteration ...came about because of a mistake I needed to fix. What's important is that I didn't stop at the first failure, the 50ths or the 500ths. I never will. [James Dyson, inventor of the "no bag" vacuum cleaner]

Our Brain. I regard the brain as a computer, which will stop working when its components fail. There is no heaven or afterlife for broken-down computers. That is a fairy story for people afraid of the dark. [Stephen Hawkin]

MPG Hype. About devices that promise to give you better miles per gallon of gas the following is said: "In the last round, I tested eight different types, five did nothing, two actually increased fuel consumption and one set the car on fire." [Mike Allen, Senior Automotive Editor, Popular Mechanics]

Calisthenics. "People (I research) were writing letters every day. That was calisthenics for the brain." [Historian David McCullough in Time, June 20]

Life To-day. "What do you think people (in the future) will wonder about us?" "How we could have spent so much time watching TV. [Q+A to Dave McCullough]

Jargon. Incomprehensible jargon is the hallmark of a profession." [Kingman Brewster Jr. American educator and diplomat]

Exceptions to the Rule. Exceptions are not always the proof of the old rule; they can also be the harbinger of a new one." [Marie von Ebner-Eschenbach, Austrian writer]

Oratory. Oratory is the power of beating down your adversary's arguments, and putting better (ones) in their place." [Samuel Johnson, British author]

Bravo. The Alamo Draft House Cinema doesn't play ads, doesn't admit kids under 6 (or unaccompanied minors) to most showings and will eject without refund patrons who talk or text repeatedly after the lights go out. [Time, June 27, 2011]

NE8i/Rover

2m Sprint Results April 13-2011
From the Michigan North Woods.

2M sprint is of course the big one. Started about 7PM EDT. Had lots of fun. Quite a bit of activity. Started at AJ scenic EN74at, about 2 hours, then moved to Empire Bluff EN64xt. The two locations are 6 miles apart. To keep the fuel budget down this added up to 32 miles total. Not the original plan. To add another grid, I would have to drive another 30 miles and spend another hour driving.

We had really nice weather and there was a beautiful sun set. Last station I heard was about 10:20 PM EDT. Went home about 10:45. My equipment: FT847,160W amp, 7 element M2 Yagi.

From EN74at (AJ scenic) wkd K9TM EN81dr, K9EA EN71le, N8JX EN64vj, KC9BQA EN63ao, WB9TFH EN53xa, and K8TQK EM89je, which was my best DX. About 0020Z heard some weak Aurora CW, but could not pull the calls.

From EN64xt (Empire Bluff) KC9BQA EN63ao, W9GA EN53we, N9UM EN52wg

EN74at again proved to work best. Heard and worked from there the bulk of the stations. I typically hear lots more stations, than I work. This time I worked about 1 in 3 . EN64xt is closer to the Lake, but at lower elevation. Height works better. Here some grids I heard but couldn't work:as far as EN34 and EN91. Conditions were not super, but good. Using strictly Battery power in an RF quiet area, I heard quite well. The S-meter with preamp on, barely moves. Years ago, made Rover more RF quiet, for weak signal work.

Likely same rover plan for 222 and 432 sprints. Still have not decided on where to operate for the Microwave sprint. I know lots of rovers have and use announced frequencies. Where I have been using more Columbus style, find them and land on them. Plus CQ. No skeds. Tuning around, I found lots of activity, which was great. Just to be able to hear it all. I had a list of announced rovers and frequencies. Heard many of them. Gives me a chance to try different filters, preamps and experiment with weak signals.

May Microwave Activity Day, May7/8 2011

Drove to EN74at. AJ overlook. Nice day. Very Hazy. However, looking over Lake Michigan, noticed a layer of clouds along the Lake. Could not see the Lake. Normally, can. Turned out to be fog. About 400-600 ft thick. Cold Lake Michigan, warm wet air from the South. Propagation, was like this last year. Poor. Managed to work K2YAZ Bob EN74av 903 to 24 GHz. About a 10 mile path. Trying with W9ZIH Ron, we could not even hear each other on the microwave bands. Bob had better luck with Ron, but signals both ways were poor. On 2M, heard: K2YAZ, N9LB, W9ZIH, W9SNR/R, W9SZ/R, K8MD, K2DRH, K9JK/R. It appears that inland to inland paths were working, but not paths across Lake Michigan.

Then, I relearned Lesson #1. You cannot have too many fully charged batteries. Did not bring enough. After 10+ years, rover use, some batteries, well, don't work that good. Need replacing. Limited what I could do later on.

Weather Buro, said 65 degrees, 28% RH and 10 Mile visibility. Maybe inland, but not on the Lake. The Lake was foggy, calm. Visibility was well under 10 miles. Last year May MAD/Sprint was this way as well.

Sunday, Bob and I decided to try and work a path, we have never been able to work on 24 GHz. Into EN75ee from his place. 29 miles. On the maps, it looks like it should. Works fine direct on 10 GHz and below. In past tries over the years, he has heard the group at EN75ee only once. Not on a direct path. Took about an hour after we started. This is where having a dedicated beacon comes into play. Let it run, try stuff. Watch signals change with conditions. A quick check with the direct path, found, it was not working. Normal.

The one time Bob had heard a signal, it was indirect. So, we concentrated on that. Aimed at a collection of buildings, known as the "Cannery". The buildings have a large number of big metal objects inside. For Bob, about 110 degrees off direct. Me, only a few degrees. We played with it for a while to optimize the signal. For me, tried the top of the bluff. Not very strong. Moved right down to the water. 3 ft from the Lake. 3 ft above it. Best results.

Once strong enough, worked CW. I was s5, Bob s2. Then we tried looking around for other things, that might reflect a signal. No luck. Then check out the dishes, elevation, etc.

On the microwaves, there are many useful things to bounce signals off of. Just have to keep trying. Weather for this contact, WX Buro said 67, 28%RH, 7 MPH winds, and 10 miles visibility. Lake Michigan, was foggy, calm. A couple miles visibility max. As the day wore on, the sun burned off some of the fog and haze. Wind and waves picked up. Have to find a good marine WX report. Or might need to think about bringing along my Davis Weather station.

Another quicke fun experiment on 24 GHz. Signals through the woods. Leaves are not out yet, but sap is up in the trees. Limit of about 3 miles through the trees.

June-2011 MAD Report June 4-2011

Saturday 6-4-11 was a good morning for June MAD. Started at AJ scenic overlook, EN74at. Lake Michigan propagation was not good. Cold Lake, warm wet air over it. Result; Heavy haze. Fog. 3 to 5 mile visibility. Worked K2YAZ on 24 GHz. Listened to Bob work W9SNR. I could not hear him. So drove the 2 hours down to Ludington State Park. EN63sx get close enough to try. A real nice day on the Lake. Sunny. Scenery.

Ran with K2YAZ. Heard each other on 903. Tried other bands. Jim W9SNR drove down to EN62cn. We worked across Lake Michigan on 903 through 10 GHz. No problem. Much improved conditions and propagation over the last 2 months. 2304 was pinning the S-meter. We tried for quite a while on 24 GHz, but just could not get across the Lake. Doing that, can easily take hours, or days, waiting for the right conditions.

Afterwards drove over to Walkerville Hill. Tried with K2YAZ. Not bad on VHF, but no luck on any of the higher bands. Site looks great on Google Earth and the maps. Actually trying it is another story. Does not work to the North. Maybe in other directions. High noise. Personal verification and testing is a basic must.

Bob and I spent the rest of the afternoon, driving 350 miles total, checking on other potential Michigan inland sites. Trying to find one that would produce a good Microwave path to the North. No luck. So for me,it made for a long Microwave Activity Day.To7PM.

Saturday July 2, good question. I am currently thinking: start at Ludington SP. Come back North to AJ, if conditions are really good. Or to Tustin Knob. Muskegon, if they are not. June Contest, plans are still brewing. August MAD, is the morning of the UHF contest. Too hard to predict now. Then add weather concerns.

Sunday, went to the Chelsea Michigan Swap. Besides selling stuff. Had Rover in the parking lot. Like at Dayton, showed a pile of the microwave things. Had lots of people asking questions and such. Talked with a few of the stations active on Lake Erie for June MAD. They are also busy making plans for 10 GHz August weekend Cumulative. Looks like there will be several stations on. Last year I am told, they even had "surprise", unannounced stations on.

73, Lloyd NE8i/r EN74 etc

2011 Hamvention Comments

VK Microwave Company

By Lloyd, NE8i

At the Dayton Hamvention I bumped into Alan VK3XPD. He brought from Australia, a number of samples: built microwave kits by Graham VK3XDK.

The VK9NA group donated a 10 GHz kit to the Dayton VHF banquet. KB8U Russ won it. Will be interesting to see his comments. Alan VK3XPD was there, to show and promote them.

Saturday, Kent WA5VJB donated some table space for Alan to set up, and talk with anyone interested. Their web site, www.vk9na.com then /transverters.html leads you to specific pages, including how to order. There is also good coverage of the VK9 Microwave DX pedition.

Alan brought several built LO's for sale. Graham's LO, covers roughly 1 GHz to about 1.97 GHz. It has a DIP switch, controlling a PIC which can select 16 different programmed frequencies. Graham can program in other desired frequencies. Or you can. The 2 inch square board, also has room, and pads for an ERA 2, in case more output power is desired. The LO, has a 10 MHz input for ref loc. There are 2 outputs. One for the RX chain. The other for the TX chain. Price is \$100.

The higher bands are each \$150. 1296 to 10 GHz. 1296 is still being developed. Alan had a demo on display. They are designed along the lines of the classic Down East, KK7B, WA8NLC. With hairpin and strip filters. No pipe caps. 10mW output. SMD parts. So, a set up would be the switchable LO, 10 MHz reference, then a coax switch to each band. His demo LO, had a set of switches to select the desired LO frequency.

They look pretty good. I plan to get at least one, build it, see how it works. The Aussies prefer 432 for their IF. Which is what several others and I do.

Another great kit available at Dayton. WA5VJB preamp: 50 to 2,500 MHz 0.8 dB noise figure MMIC. \$15. Either hard line coax or SMA connectors. Can be found On Kent's web site. SPF5043Z GaAs pHEMTP useable to 4.5 GHz. Very small PCB. Not to mention, all the PCB antennas.

More on the Hamvention

By Gerd, WB8IFM

First, the wx was super. Attendance was good, as usual numbers were hard to come by. It was crowded but not too much, just right! Mike, W8RKO found a source for our local oscillators with affordable prices. It was W7BAS. I talked with him briefly but when I came back Sunday morning he had packed up already.

Mendelson always has some interesting items for sale. This time it was LED traffic lights. We all know the story: they put out sufficient light but didn't get hot enough to melt the accumulating snow and ice in the wintertime. So now you can purchase them for \$20. One thing that probably surprised everybody was the size of these babies. But we do not get to see them close, always from a distance and up in the air. I had to remind myself, I have plenty of projects accumulating dust already!

Amazing too the number of vertical antennas being offered. They certainly do not take up horizontal space but that's about the only advantage I can think of. They sure pick up more noise and unless they have good "counter elements on the bottom, in essence making it more like a vertical dipole, the quality of the ground makes or brakes this type antenna. And, of course, there is directivity, ergo no gain.

There was another Australian company "EMTRON" offering real high power amplifiers, they make the legal limit look sick. Most hams are quite happy with the 100Watts, the "run of the mill" transceivers put out. But there are now higher powered ones available. An external amplifier adds a complication many hams shy away from. I myself settled for one kW, after one of my tubes failed and I kept operating with a single 3-500. So how much do I loose: a mere 1.8 dB.

On the international front, the ARRL section of the exhibits now included a booth from Qatar and China. A nice addition also was a "QSL Wall" in use at the German "Ham Radio" for many years.

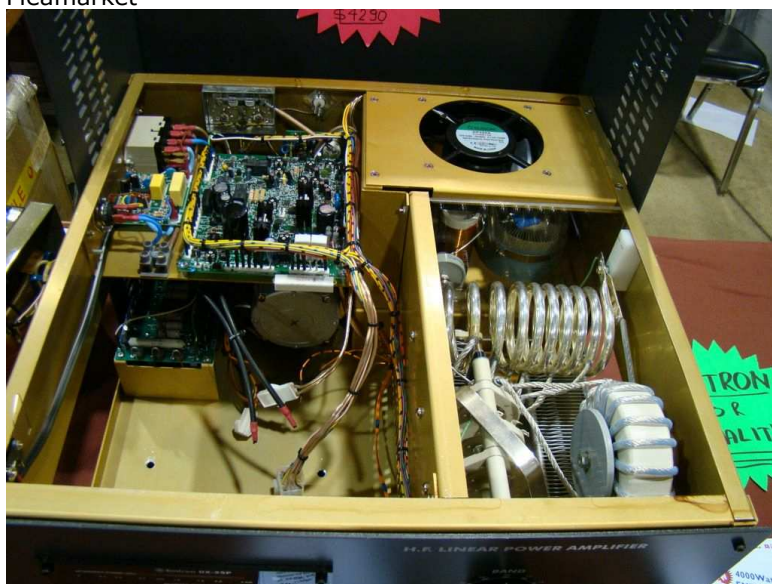
Pictures from the 2011 Hamvention, 20/21/22 May in Dayton, Ohio



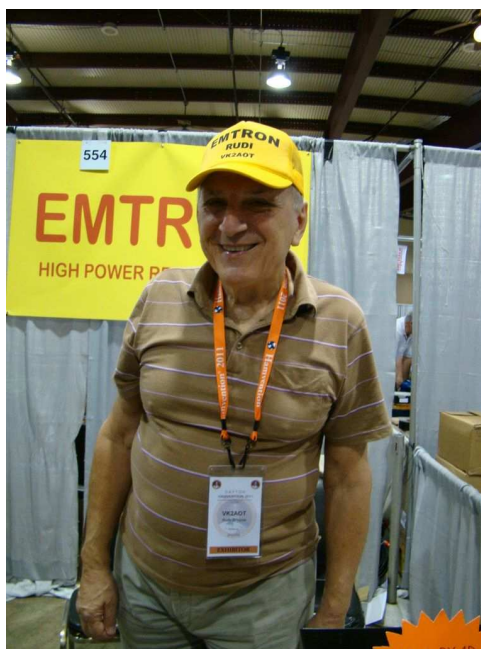
Fleamarket



IF you got everything else!



EMTRAN High Power HF-Linear



Rudi from EMTRAN



Invasion of the Verticals, radiating equally bad in all directions



Crank-up for Ham Millionaires

(there are some!)

More Pictures from the 2011 Hamvention



Visitor from India with Mike, N8QHV



The QSL wall and Mustapha, DL1BDF



Manny, W3NNA with Brazilian Hams



Call Book people



Ancient "Sounder" click clack



Tangled or Neat

Transponder Progress 5-2011

John Human, N8VZW and Gerd Schrick, WB8IFM

We were just about ready to put the transponder back into position for the upcoming Hamvention when we noticed that on occasion the transponder would show a strange behavior, not previously seen.

To be on the safe side we decided to do some more checking on the local oscillator suspected as the culprit. Tom N8ZM offered to take a look. So John, N8VZW and I packed up the transponder and drove north to Tom near Tipp City. I hadn't been to Tom's place in a while and was impressed by his equipment and the ease with which he controlled its operation. Our primary objective was to measure the output of the 24xxMHz Lo, was it clean, did it have the 15dBm power? We opted to use a spectrum analyzer (nowadays called a Specan!).

Well, when we fired up the transponder, Tom exclaimed: "I see only noise". On closer examination the picture showed a carrier with lots of strong sidebands spaced 12 MHz apart.

This is the way our LOs work: A local oscillator at around 100 MHz is built to act as a comb generator, meaning it puts out lots of harmonics. The desired harmonic is filtered out amplified. Then this process is repeated until we reach the desired LO frequency. Sounds simple and it is, but things can go wrong. Where did this 12 MHz "fence" come from? Tom opened up the "comb generator", could not find a fault, but we admired the construction. It had an elaborate thermal insulation and obviously some solid-state temperature control. It was lunchtime, so Tom called Mike, W8RKO, the builder of the LO for advice. That's when we learned that a microprocessor was used to control the temperature and somehow the clock frequency made it to the output and ruined our LO's purity. There was an easy fix; turn the thermal control off!

Now the approach was straightforward. We measured the spectrum and power at all the junctions available, our biggest problem then was disconnecting and reconnecting the tiny cables with the SMA connectors. It turned out that the SMA connector might be a good connector but the act of connecting and disconnecting is a bear of a job. Tom commented the "SMA" was his "most hated connector". As often, the designers had given little, if any thought of making it easy to connect and disconnect the cables from the jacks at the equipment. The final measurement provided 13dBm output, which is close enough to the specified 15 dBm, so we could give it a try.

During the measurements Tom had also noticed that the power supply was getting real hot. So later we substituted it with another supply, which got equally hot. The voltage was right, the current sufficiently below the limit. Seems like we are getting used to the cool running switching supplies.

Time was getting close to have the transponder ready for Hamvention, we mounted it in its box on the roof of Steve's, K8UD, business.

We let the transponder run over the weekend only to find out that at one point the oscillator had quit on us. Only a few days to Hamvention we gave up for this time.

At the Hamvention Mike, W8RKO, found a vendor, W7BAS Micro-Synth offering microwave LOs for a quite reasonable price, the design featuring the common approach also used in LOs for converters, a VCO controlled by a PLL circuit.

At this point we decided to go again through the process to pick the most convenient and useful passbands for the three bands involved before ordering new oscillators. A lot has to do with the availability of suitable equipment. Available satellite S-band converters would be a good choice. I myself have several at hand. They usually cover 2.4 to 2,5 GHz

Re power supplies, apparently they still suffer from a bad reputation of putting out too much "noise". At the Hamvention a manufacturer explained to me that the old analog supplies outsell their switchers. This when switchers are not only very efficient, 90+%, but also small and lightweight. My recent experience with switchers is very positive, have not had any problem with noise!

ARISSat Launch Delayed Until July

NOTE: The following updates information in both March and April issues of CQ.



Lou McFadin, W5DID, with ARISSat-1 mockup at Orlando Hamcation. (W2VU photo)

The launch of ARISSat-1, currently on board the International Space Station (ISS), has been delayed until July. The satellite was initially scheduled to be hand-launched by the ISS crew during a spacewalk in mid-February. However, a change in the work schedule for the February spacewalk pushed back the ARISSat launch and the ham community was initially told it would be launched in April, to coincide with the 50th anniversary of the first manned space flight, by Yuri Gagarin. The latest information, however, indicates that the next spacewalk by ISS crew now will not take place until July at the earliest. For more information on ARISSat-1, see the "VHF-Plus" column in the April issue of CQ and the ARISSat-1 website at <www.arissat-1.org>.

Would have been nice to have the satellite available for field day 25/26 June(ed)

Gain of Circular Polarized Antennas

"To consider the gain of a circular-polarized antenna, it is best to consider the crossed Yagis. If the Yagis were side by side or stacked, the gain of the arrangement would obviously be 3db higher than a single Yagi. In the cross arrangement, this 3 dB is not available and is considered polarization loss. However, if the intercepted wave were circular polarized, there would be no polarization loss for the crossed Yagi and a 3 dB polarization loss for the side by side Yagi, thus making the two antenna arrangements equally efficient." [ARRL Antenna Compendium, Vol. 1, pg 152]

Why would you use circular polarization? For 2m FM you use vertical, for serious work (CW, SSB, DX etc) you use horizontal!

But if you have a mobile or an airplane or a satellite, the orientation of the antenna is often unpredictable. Some satellites spin and thus create a rotating wave. The circular polarized antenna copes with these situations admirably. Here you lose the 3db in case of mechanical rotation (slow) but you retain the full gain of your Yagi for all angles, there are no drops. I would imagine that would be a good compromise to do moon-bounce, where you often have a problem with slow Faraday rotation.

[Gerd, WB8IFM]