

Vol. 17 No. 6

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August 2003

Club Memorial Call W8KSE

Achtung! Our Annual Picnic/Measurement Session will be on Saturday, August 9

We get started around Noon (set up & Measurements); the Picnic will be around 4 PM

The place again at Karen & Daun's (for directions see below)

MVUS will provide food and drinks

Bringing a (healthy) side dish would be appreciated

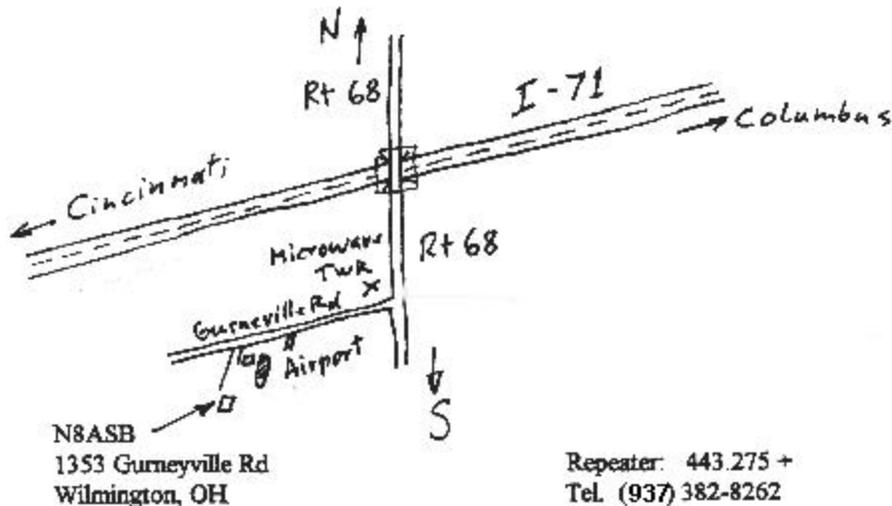
Also bring a cooler (if you have) to keep the drinks cool

Bring your 10 GHz set up to get it checked out

Daun will try to do some antenna pattern measurement

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De N8ZM

By golly, it is August already. How did that happen? And in just a few days, we will be out at the Yeagley's having our annual picnic cum antenna measurements. Just to make it official, the date is August 9th, the place is Daun and Karen Yeagley's (directions to follow), and the starting time is noon-ish. As is traditional (and until Gerd tells me the treasury won't stand it), MVUS will supply the burgers, dogs, and soft drinks, and we ask you to bring a salad, snack, covered dish, or dessert. We always have plenty of food, so come hungry. Of course, this is a family event, so the wives, kids, and even grandkids are welcome (I put that last rule in just for me!). For those who wish to help with setup (and there always is a bit of that), we'll start about 11:00. Look to have seriously flamed meat off the grill around 4:00, or so.

Daun is hoping to have a motorized gadget working that will allow us to have automated antenna pattern measurements this time, at least up to 3 GHz. Of course, we will have the tools to measure gain up through 10 GHz in our more traditional manner.

The weekend following the picnic is the ARRL 10 GHz contest, so, at Brad Totten's suggestion, at the picnic we will have a signal source, spec an, power meter, and I hope, noise figure meter available for some last minute adjustments and tests, as well. And John, N8UR, plans to bring the portable Rubidium frequency standard, which he and Mike, WB8GXB, put together. That should help everyone become way over-confident about the accuracy of their LO settings! Also, it will be an opportunity for all of the 10 Gig'ers to strategize and advertise their plans for the contest. Hey, since we have all that gear available, you are welcome to bring stuff for others bands too.

Let's see, have I forgotten anything about the picnic? If so, call Gerd or me so we can fix it and get the word out.

One of the things I want to do over the next few months is get some feedback on how the electronic distribution of Anom Prop works for you, and for MVUS. Are you getting it in a timely manner? Is the screen format to your liking? Should that clown who writes the lead editorial every month have his keyboard impounded? Stuff like that. And we would like to hear your suggestions for new features, topics to cover, or any other ideas that you have. I think we have an excellent publication, thanks to Gerd and Steve and other folks who have worked on it over the years, but that doesn't mean we can't evolve to provide the content that interests you and helps us attract and keep new members. While I don't believe in growth for its own sake, I think growth is an indication that we are doing something, which is interesting and attractive to a larger group. So let us know what you think, and what you want via e-mail, phone call, post card, or in person.

The normal 4th Friday this month is the 22nd. I will be on the road, again (is there a song title in here somewhere?), so Gerd will be in charge, or Steve, since he did so well in June. Either way, have fun!

See you at the picnic! Tom, N8ZM

More News of VHF Openings (ARRL Propagation Report from 7-25-03)

Pat Rose, W5OZI said on July 24, from 0046 to 0052z (which was Wednesday night in North America) he worked five Japanese stations on 6-meters. Pat said that in 18 years on 6-meters he has never had E-layer propagation to Japan from his home in Junction, Texas, about 120 miles west of Austin. Pat says the approximate distance to the Japanese stations is over 10,300 km, or 6,400 miles, and believes it took six hops (?) off the ionosphere.

This and That 8-03

- **Magic.** While many dream of a future filled with enhanced human beings and technology so advanced that it will be indistinguishable from magic, a small but growing movement questions whether some avenues are better left unexplored. [Steven Martinovich]
- **Space Standards.** If the same standards of safety were applied to automobile driving that some would apply to space programs, most of us would never be allowed out of our driveways. [Tim Braithwaite]
- **What to Do?** A car with a group of scientists/engineers quit running suddenly in the desert. The chemist blamed it on bad gas; the physicist thought he heard misfiring, and so on. However, the computer guy of the group said: "I have no idea what it is, but why don't we close all the windows, get out of the car, give it a minute, then board it again. I have a hunch, it will start right up."
- **White House Secrecy.** "Every administration I've ever covered has been secretive, not just this one. They'd stamp 'classified' on the color of the walls if they could." [Helen Thomas]
- **Technology.** In looking at any technology, Fox believes it's important to step back and ask who is in charge: person or machine? If the latter, some rethinking may be necessary. [Ross Atkin about Nocole Fox in CSM]
- **Travel in 1818.** That year the Cincinnati Dayton passenger and mail coach service was inaugurated. Tickets were 8 cents per mile and passengers were allowed 14 pounds of baggage. [Dayton and Montgomery County Convention and Visitors Bureau]
- **Eating Out.** The restaurant business represents big bucks. Americans spend \$1.2 billion a day for eating out. To give it perspective, divide this number by the population of the US. Then this amounts to \$ 4.12 for every man woman and child in the US every day. [Consumer Reports]
- **Population Clock.** The US census count was 291,182,407 at 11:06:27 EDT on 6-8-03. Presently the count is: one birth every 8 sec. One death every 13 sec. One international migrant (net) every 22 sec. Net gain of one person every 10 sec. or 8,640 per day. [US Census]
- **A Hole through the Earth.** "Would you fall all the way through a hypothetical hole in the earth?" If this was feasible: yes. It would take a total of 42 minutes for the trip from a start with an initial speed of zero. [Scientific American, 8-03]
- **Sneakerization Tactic.** The name of a tactic in honor of the sneaker industry, which now has people paying \$ 200 a pair for increasingly weird-looking footwear boasting the durability of thinly sliced Velveeta. [Dave Barry]
- **Mach3Turbo.** A "top of the line" three bladed razor which according to the Gillette Web site has more technology than a nuclear submarine, including "open cartridge architecture" and an "ergonomic handle" featuring "knurled elastomeric crescents". That's right: It has elastomeric crescents, and they have been knurled! By knurlers! No, I don't know what that means. But it sure sounds technological. [Dave Barry]
- **Repairman's Joy.** I really love the personal satisfaction that comes from fixing a dog. ... (and) remember, please, it's not the repair guy's fault your rig needs help! He did not design, build, or operate it! [Doug K7ABX]

10 GHz and Up Contest

Get your 10 GHz equipment in working order and participate in the upcoming ARRL 10 GHz and Up Contest! The first weekend of the contest is **August 16 & 17**. Rules for the contest can be found on page 105 of July QST or at web site address <http://www.arrl.org/contests/rules/2003/10-ghz.html>. Basically you get 100 points for each unique call sign worked and 1 point for each kilometer distance between you and the station that you work. To work the same station again one of you have to move 10 miles. The second weekend of the contest is **September 20 & 21**. Times each weekend are from 6 AM local time Saturday to 12 Midnight local time Sunday.

This is a REALLY FUN contest! I have been participating each year for eleven years. You can enter the contest for just the 10 GHz band. So you only need a minimum of equipment. A 10 GHz rig and a 2 meter FM or SSB rig. It is exciting and refreshing seeking out high terrain locations from which you can operate. In addition to the neat experience of talking to someone on 10368 MHz it is exhilarating experiencing the views from lofty places.

Several of us in MVUS plan to participate this year. Please join us!

Brad Totten, K4EFD

The way it was (What 10 Ghz gets you into!)

By Gerd, WB8IFM

Getting involved in 10 GHz work reminded me back to the old days of ham radio, which in my case meant to the days after WW2. Many things have changed since then and ham radio, of course, was not spared.

In those days just about the entire ham radio set up was build "from scratch". It helped to have surplus available from the war, which made the building easier and got a large group of hams started by mostly converting military equipment. I remember we would be building a transmitter for 6 months, then try it out, have a few QSOs, then decide to rebuild the thing to make it perform better. The same we did with the receiver and the antenna. We did not have transceivers, although when I think about the supergenerative Rx that we used on 2 m, this statement is not entirely true. The one tube Rx could be changed to a Tx by simply switching the grid resistor from several meg Ohms to maybe a few tens of kilo-Ohms.

Over the years the ham population grew steadily and frequencies became scarce and it was hard to find a "clear spot". That was the time some clowns from the ARRL thought about "incentive licensing" which was a way to secure for a selective group of hams that were "good morsers" frequencies that the other peon hams were not permitted to use. This ill conceived plan stayed around until recently and ironically, now that everybody could become "an Extra" w/o the Morse test, there are fewer active hams and frequencies galore. So there is practically no need to check, if the frequency is clear.

A different picture emerged with contesting. There always were contests and I participated in a number of them. But when it used to be a question of building a good working station combined with good operating skills, it has now become a matter of operating skills and tricks only. And for some strange reason it attracts a lot of hams. If only half of those were on the air at other times, we would have a nice balance again. In the old days, the contesting would fill about two thirds of the particular band, now the entire band is covered up, leaving no room for other activity. The divers use of the frequencies, a desirable aspect of ham radio, has with the contests on HF, become a plague and crowded out other uses.

It is still different on the higher frequencies, and during an EME contest you might be on the air for two days (so many hours per day of moon visibility) and work fewer than 50 stations. Each contact requires patience and concentration, and of course, there is no plug and play stuff on the market you could afford, so lengthy home brewing is part of the game. VHF and microwaves propagate close to line of site, so during contests teams form to set up on mountaintops. Another category involves roving and temporarily setting up alongside the road at high spots. I heard of a contest where groups of hams were given tools and a box with parts. They had to put together a working transmitter and receiver and conduct a qso over a short distance.

Each of these contests are much more meaningful than the short-wave variety, they bring new experiences and require home brewing, the essence of ham radio, rather than shooting fish in a barrel.

The 10 GHz microwave band has enjoyed popularity among hams for some time and changes in technology, new applications have contributed in providing resources to build a station.

Microwave Activity around Lake Erie

By Lloyd J. Ellsworth NE8I

On Microwave activity days, I have been operating from Lake Erie Metropark, Rockwood, Michigan, EN82jb, which is the NW corner of the Lake. This is one of the good rover sites, easy access, with all paved road, paved parking, located about 100 feet from, and 2 feet above the Lake. From the microwave point of view, few obstructions on the Lake Horizon (e.g. few trees). With the upcoming 10GHz cumulative coming up, here are some suggestions.

The tropo over Lake Erie is fairly well known, quite regular and been the source of many Amateur FM repeater feuds. What the FM repeater's and commercial FM users considers to be an annoyance, is a boon to us weak signal, microwave, and DX operators. Observations of Lake Erie tropo, has shown that it tends to be strongest in the early morning, weakest in the afternoon. Sunset, post sunset, conditions can improve. Propagation rises and falls, sometimes even within a few minutes. Sometimes over an hour. Can be strongest after sunrise, but fluctuates quite a bit. The effects are not even over the Lake, but can vary, some areas and paths stronger than others. I would suggest 1 to 3 hours after sunrise are typically best. Color of the sky horizon can indicate propagation conditions. Over the years, I have made many VHF and microwave contacts using this, including many really good 10G and 24GHz contacts. Keep an eye on Hepburn's tropo forecast. But don't totally depend on it. The geography of the Western end of Lake Erie is low and swampy. The surrounding terrain is low and flat. The Eastern end of the Lake offers many hills and bluffs that are near the Lake, and are quite high. Cleveland is at the dividing line between these two different regions. Along the US side of Lake Erie, there is fast access from the Interstates, which for the contests helps a bunch.

I am going to list a few of the public locations that I know about in Michigan and Ohio. Some I have used regular, and many more that I need to explore. Access, features, convenience, rules, etc included where known. Most parks have family activities, which can keep kids etc busy while you are operating. Many have noted that often, the best signals are obtained, when one or both stations are right down on the water, or really close to it. G. Marconi noted this phenomenon years ago. I have been taking digital photos of many of these locations, and will post them one of these days.

Lake Erie Metropark, EN82jb is near Rockwood Michigan, and across the river from Amherstburg, Ontario, Canada. The park is over 2 miles long along the Detroit River and Lake Erie shore, with several large paved parking lots along the shore, which offer several easy 1km plus paths inside the park. This is very helpful to us rovers who would prefer to operate in safer groups, rather than high-risk individual operations with the post 9-11 effects. One of the park locations offers a small sled hill, to get above things. Easy access from I-75 and I-275, exits marked. \$4 park day pass. \$20 annual. Park opens at 6AM, closes at 10 PM.

Sterling State Park, Monroe Mi EN81iw. \$4 fee.

Port Clinton, Catawba Island, Marblehead offer several really good operating locations. Right on the Lake, good parking and good access. On SR 163 in Downtown Port Clinton, EN81mm is a free public park, with gravel parking, and really good Lake access.

On Catawba Island, there are several possible locations. One I used was a free park near the ferry, at the end of SR53. EN81oo. Small park, but really good parking and access.

Along SR163, Marblehead has several good locations. The historic lighthouse at Marblehead EN81pm. I am told this is the one on the Ohio License plate. The road going to the lighthouse is a bit confusing, pay close attention to the signs, but it is paved, with good paved parking. It is a free state park. There are many antique and souvenir shops for the XYL and harmonics, not to mention things for them to do, and plenty of good places to eat. Further down SR163, are more parking lots, and operating locations. Most are very small. Some have paved parking, many are gravel. Many have good views of Cedar Point. Last time I used this location, with the VE3 group on the other side of the Lake, we had some very unusual propagation, and unusual antenna headings. Probably from the storms that were over the Lake. Often, it pays to swing the antenna way around and look in oddball headings. Long calls are really important on the microwave bands. This is why I have the PIC keyer that keeps calling, so I can make real long calls easily.

In downtown Cleveland, on I-90 at Deadman's curve, is Lake Erie State Park EN91dm, free, good parking, near the Lake, and I have had some phenomenally strong signals from this location.

There are many other locations, tried and potential. I will endeavor to scout out some more of them, and pass along the details here. Many of the other Great Lakes, offer similar trop effects. I am planning some future rover microwave expeditions.

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e-mail: ne8i@arrl.net Packet: (uc) Upper Whoville EN82jm + Rover 160M-47G
LM-ARRL, LM-AMSAT, SETI league RR#10

More on Lightning and Thunder (from Web, AP-8-03)

Are thunderstorms the only source of lightning? Lightning is usually associated with thunderstorms. On a few occasions, lightning has been observed within giant steam and debris clouds from erupting volcanoes. Lightning, and even miniature tornado-like vortices attended the spectacular volcanic birth of the island Surtsey near Iceland. Giant plumes of smoke from large forest fires also have been known to produce lightning, although these smoke clouds were probably in the process of turning into regular thunderstorms. In the western US, most forest fires are started by lightning. Sometimes the heat from the intense fires trigger new thunderstorms ... which in turn can produce more lightning. This is called a feedback loop.

Can lightning strike twice? In many ways. As mentioned, in a typical lightning flash, often several strokes hit the same spot in rapid succession. Tall structures and buildings such as the Empire State Building in New York City, the Hancock Building in Chicago and the CN Tower in Toronto are hit many times each year. This fact has actually led to conducting research sites in lightning in using structure like these. In general any object struck by lightning is generally a better candidate to be struck again than something which hasn't been zapped. And then lightning does strike twice...and sometimes with apparent malevolence. On 8 August 1937, three persons were killed by a bolt that struck Jacob Riis Park beach in New York. On 7 August 1938, almost a year to the day later, lightning again struck the same beach, and again killed 3 bathers. Don't tell a homeowner in Arvada, CO that lightning doesn't strike twice. His new house was struck during a summer thunderstorm and sustained considerable damage. Just as they were getting things back in shape six weeks later- shazaam! and \$30,000 more in fire damage.

Can you make lightning indoors? Easy, although on a rather small scale. When the indoor relative humidity is very low, which it often is during winter, static electricity builds up on your shoes and clothing can generate notable electrical discharges. It can result in "that annoying static cling" on your dress, and a lot more. In fact, each inch of spark represents a potential difference of 40,000 volts. So a three inch discharge represents a 120,000 volt potential difference. This is why you want to protect your PC from static electricity. Cat fur gives up its electrons easily. So if you need to generate an electrical spark just grab that kitty and rub away.

Does lightning give off radiation besides light? In 1895, William Roentgen discovered X-rays. Much more recently atmospheric scientists were surprised to find that thunderstorms can produce X-rays during lightning discharges. Of course lightning also radiates radio energy over a broad range of frequencies. Some of this energy is with the AM broadcast band, which produces the familiar static heard on many summer afternoons and evenings. Another name for this static is sferics, short for atmospherics.

Where does lightning like to strike? Lightning strikes most portions of the globe sooner or later, but it does have its favorite haunts. Weather satellites suggest that the vast majority of lightning strikes to the planet occur over land areas, even though it comprises only about a quarter of the earth's surface. Not too surprisingly, the tropics receive two thirds of the lightning bolts. But some mid-latitude storms, such as those which roam the interior of the U.S, during summer night time hour, can be prodigious producers of lightning.

Do lightning rods work? Yes. Lightning rods, invented by none other than Ben Franklin, neither attract nor repel lightning bolts. They do, however, provide a safe path to ground for the flash. Indoor plumbing, which includes pipes buried deep in the ground and vents extending above the roof, have long served as surrogate lightning rods for homes. However with the trend towards using PVC rather than metal pipes, this "free" lightning protection has vanished from many newer homes. But to be effective lightning rods must be properly grounded, and there should be no sharp bends in the cable leading from the air terminal (the pointed rod) to the grounding rod.

The Problem with the "Cubesats" (edited)

The concern I have is that these very small satellites are getting deployed in a very important orbit regime. Once the useful life of these satellites is gone, they will be space debris projectiles that can wreak havoc on the world's precious Earth observing satellites. They have the potential to impact the satellites that help predict your weather, the satellites that determine if we are using our Earth resources wisely and the satellites that save lives every day.

How long do you think the cubesats will be up there? Well, here are some predictions for various orbits.

800 km -- 285 years

700 km -- 66 years

600 km -- 15 years

500 km -- 3 years

400 km -- 0.5 years

300 km -- 0.1 years

So the latest cubesats will be there for probably more than 300 years!!.

It is my understanding that there are over 50 universities working on these satellites. I think that we (universities, AMSAT, and all space enthusiasts) all need to pause and think about how to effectively utilize the two important precious resources we have in our possession----the frequency spectrum and the precious space orbits. If we squander these away or get organizations upset with us (remember I am using the collective we here), then everyone will lose.

Something to think about. Frank Bauer, KA3HDO

Finally, Hams get some Respect

Sacramento 7/15/2003 Governor Davis signs Legislation Protecting Amateur Radio Broadcasts

Amateur Radio Licensees Play Integral Role in Public Safety Network

Governor Davis signed legislation today that would ensure that amateur radio stations' communication will not be obstructed by any city or county ordinance. Due to the wide number of volunteers who utilize their amateur radio licenses during times of natural disasters or emergency situations, maintaining amateur radio stations' ability to broadcast is an important resource to security and rescue aid.

"Licensed amateur radio operators give thousands of hours of volunteer service to the state and local governments," Gov. Davis said. "They are an important part of our public safety network."

AB 1228 by Assembly member Bob Dutton (R-Rancho Cucamonga) mandates that city or county ordinances that regulate amateur radio station antenna do not obstruct the communication abilities of the station. It also allows the antenna structures of the radio stations to be constructed to effectively maintain their broadcast services; therefore, preserving the integrity of the radio communication system.

There are nearly 5,000 volunteers in the state of California who hold amateur radio licenses. These volunteers play a crucial role in events of natural disaster or emergency situations when telephone systems are inoperable by utilizing their broadcast ability. By providing a reliable communication system during an emergency situation, such as a terrorist attack, amateur radio stations provide an invaluable service to the state of California.

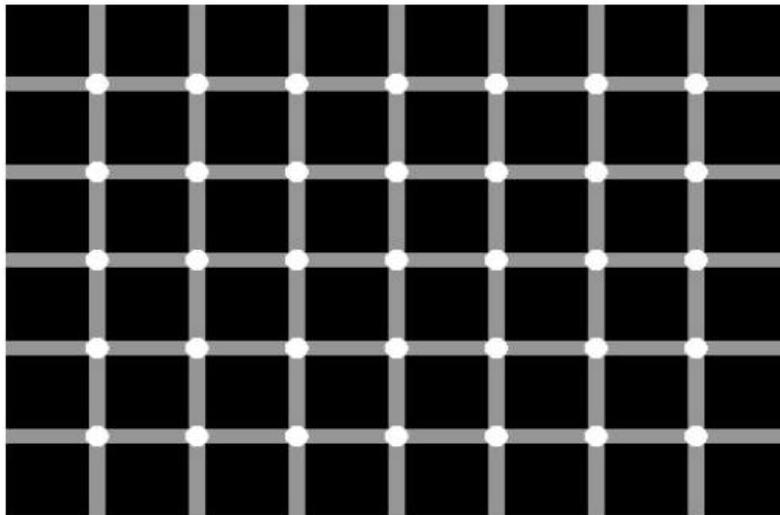
Linux - Is it for you?

by K8UD - Steve Coy

A lot of buzz words and really no definitive approach to this question. I guess the easiest way to answer is how much time do you have? If you have the time to invest, by the time you finish, you will have a very stable operating system. No more "Blue Screen".

As I see it, the major problem is getting all the device drivers loaded into the kernel (in windows terminology it is the operating system). There are several similarities, such as the system.ini file or the system registry file as in Windows however, they do have different names and locations. Linux differs with Windows partly in the way it is set up. In windows, it goes out and looks for devices. In Linux, you tell what the devices are and how they are configured. There are some linux programs that will look at PnP devices; however, some tweaking will still be required. I have set up Debian 3.0 and my discussion will be on this version.

Well, the first question is why Debian? After trying Red Hat and several unsuccessful attempts a few years ago, I have looked at other flavors of Linux. When working with Linux, you do have a different mindset of software engineers and different buzzwords. I will refer to Windows, because, most of you are familiar with this system. In all Windows, you have a /windows directory and system files under /windows/system directory. Wow, no matter what windows system you look at it is the same. This is one of the few "pluses" Windows has, consistency. Now with Linux, the conventions are not the same. Many times you can find config files under /etc/ or /usr/ or under /share. Depending what "flavor" you are using (Red Hat (big in the US), Suse (big in Germany), Mandrake (big in France), Debian, and several other put them where they want to). Getting back to why Debian, first of all, you can download the entire Debian release directly off the Internet. Since I have DSL, this was a no brainer. In one evening I had the basic system up and running. Another reason for Debian is it is truly a non-profit organization and is supported solely by its members (the others charge for their distribution). The last reason is that Debian is built for the "Ham". Debian has more programs written by hams for hams. There are more releases everyday. I was further enticed to jump into the Linux ring after listening to the senior project manager, Bdale Garbee at the 2002 MVFMA/TAPR Bash during the Dayton Hamvention. He has an ideal job in doing what he does best, having fun doing it and he loves to talk to others about it. His talk was more about his history and the history of Debian in the abstract; however, it provided me the catalyst to pursue this operating system. **More in the next issue!**



Count the black dots! :o)

Comments on a Patch Feed

William, I am not sure which patch you built - it looks like the K3TZ. (<http://www.qsl.net/k3tz/>)

I built one of these a while back and some of my tests are reported on K3TZ's web page.

I also built the patch as carefully as possible to the dimensions provided. In the as-built state, the polarization was nearly pure linear and it was only after **MUCH** tweaking that I achieved good circular polarization. My test equipment was a network analyzer and a rotatable sampling antenna. The beauty of this set up is that it permitted circularity to be tested across frequency. During tweaking, you could see that the patch was often working quite well, but not at the desired frequency. This helped greatly in getting a handle on what to adjust to bring it on to the wanted frequency. If I had just measured it at 2401, I think it would have been more difficult to get it working.

I quickly found out that patches are very "high Q" devices, are critical to adjust and only have good circularity over a very narrow frequency range. If our experiences are anything to go by, I think it is highly probably that most homemade patches, which have not been tuned up with test equipment, are unlikely to have good circularity and may also have a poor VSWR.

Contrast this to the short helix, which being a "low-Q" device is relatively insensitive to constructional tolerances. It has adequate circularity over a wide bandwidth and a reasonable VSWR.

73, Charlie G3WDG (via the AMSAT-BB-Germany)

The 2003 Perseid Meteor Shower (NASA, 7-03, edited)

Mark these dates on your calendar: August 12th and 13th.

The Perseids are probably the best-watched of any annual meteor shower. They come in mid-August when it's warm and comfortable to be outside at 4 o'clock in the morning. They are bright, numerous, and dependable.

This year the shower peaks on Wednesday, August 13th.

When skies are dark and clear, observers often see as many as one hundred Perseids per hour--an impressive display. This year, however, skies won't be dark. A glaring full moon will wipe out many faint meteors and reduce by a factor of two or three the number you can see.

However, the best time to look will be just before dawn on Wednesday morning, August 13th. At that time, the sky overhead will be tilted into the debris stream of Comet Swift-Tuttle--the source of the Perseid meteors. Furthermore, the moon will be low in the sky before dawn. You can stand in the shadow of a building or a hill - -there's no special direction you have to face. Perseids can appear anywhere in the sky.

"But don't look toward the Moon," Cooke cautions. "That will ruin your night vision."

Other than the Moon itself, Mars will be the brightest object in the sky that night--red, piercing, and a joy to see through a telescope. When the Perseid meteor shower peaks, Mars will be only two weeks away from its closest approach to Earth in some 60,000 years.