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September 2000

**Club Memorial Call W8KSE**

**September Meeting** will be on Fri. 22<sup>nd</sup> at 7:30 PM at the Perkins Restaurant at SR 73 and I-75.  
Meeting Topic: TBD

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**Upcoming Events.**

|                                         |             |
|-----------------------------------------|-------------|
| Microwave Update/ Philadelphia, PA..... | 28/30 Sept. |
| AMSAT Symposium / Portland, Main.....   | 27/29 Oct.  |

*Drive carefully! Be responsible! Don't follow too close! Don't speed!*

**De N8ZM.**

First, some important news. I have talked with our best ally at the Perkins, Joanne, and she is willing to go to bat for us with the management over the issue of lumping the checks and adding in the gratuity. She agrees that we are good customers and have not been a problem, and sees that any business is better than none (she actually said it before I had to!). She promised to talk with the manager (Joanne is an assistant manager) this weekend, and get things worked out for us. So, at some small risk that things won't go as planned, I am making an executive decision that the September meeting will be held, once again, at the Perkins in Springboro. If it doesn't work out this time, then I'll take the heat for it (but I won't pick up your checks!). I think that as long as we continue to be well behaved and treat them fairly, we can maintain our privileged status there. If there are any other issues that you know of, please let me know so I can work them out through Joanne. She has always treated us well and made us feel welcome, and I think we can meet her halfway on that. So I'll see you at the Perkins on Friday, the 22<sup>nd</sup>.

While cleaning up the garage a few weeks ago, I found that there is still one more box of radar detectors that have not been dismantled, so I'll try to bring them along for any one willing to finish them off. I think a couple of you may also still have some of the parts to turn in. I'd guess that there are 150 to 200 sets of diodes in the bag at his time. I also have lots of LED's, 200k pots, miscellaneous electrolytics and ceramics, TO-66 transistors, 8-volt regulators, and a fair number of feedthroughs. If anyone needs parts, please call me. Maybe I can get a list together for next month. Should we consider leaving the last 50 units intact just in case someone comes up with a use for them?

Worked the September VHF contest last weekend, and we scored our best yet from the Urbana site, although the rain shut us down just after noon on Sunday. Things are slowly coming together up there now that the towers are up. Most of the discussion about needs for the next contest centered on creature comforts, like a rain/wind repellent shelter, and outdoor plumbing! Of course, the next contest is January, so heat seems like a priority as well.

This being September, already, we need to start thinking about our annual holiday party. You know, the usual when and where stuff. Looking at the calendar, I see that our usual meeting night is the 22<sup>nd</sup>, which seems like a good choice, so I decree that is now the official date. As for where, we can chat about that at the meeting, as well as the format. Our November schedule is probably OK, with the normal meeting night being the day after Thanksgiving, the 24<sup>th</sup>. In October, the date is the 27<sup>th</sup>, and I may have to miss that due to a business trip which will get me back in town rather late, So there you have it for the next few months.

See you on Friday! Tom, N8ZM.

## **Aurora Report**

Date: Sun, 17 Sep 2000 23:48:59

Running 10G+ cumulative contest, rover. Aurora observation. Hard to drive, steer, listen, operate, write down and send CW. Plus everything else. Need driver navigator, so I can operate. Started hearing the Aurora, around 2PM EDT, 1800Z, while in EN63. Hearing other rover and home stations on 144.260 with the Aurora buzz. Got really strong, even considering the 8el yagi on my 2M rover station. Some of the rovers running halos on 144, (WA8VPD) were hearing it strong. Was hearing the peak, well to the east and west of geo mag north. Around 5-6 PM EDT seemed strongest. Mostly heard W1-2-3-4 land. The yagi was aimed more east than west. (direction of driving) More /M on Aurora than ever. Must be all the 10G+ rover mobile stations!!!! Looking for anyone to talk to! Was still going when I got home in EN82 around 8PM, too tired to operate. Also heard some Au on 222 and 432. Nothing heard on 903/1.2

Reading the notes on the reflector (11PM EDT), I see it was strong to the rest of the northern US.

10G (microwave in general) propagation was extremely poor this weekend around the Great Lakes. The worst I have ever experienced. Normal easy to work 50 mile paths, were poor to unuseable. That was more weather related however. Same last month. 73 de Lloyd J. Ellsworth NE8I

## This and That 9-00

- **Theory and Practice.** Theory is, you know it all but nothing works. Practice is, when everything works but nobody knows why. In the case of Microsoft both statements are true. Nothing works and nobody knows why. [Internet]
- **Perfection.** If you need perfection and that's what it takes, then you can't use people, don't need people. You know, people make mistakes. [Gil Scott-Heron]
- **Communication.** In this day and age, a tape recorder or computer can talk; but it still takes skill to *communicate*. [Paul, W7RGL in 1966]
- **Radiomanship.** It blooms only under infernal interference, is fostered by sickly signals, and feeds on heavy doses of adverse band conditions and static. [Paul, W7RGL in 1966]
- **Kids Are Not Stupid.** After all, those weren't children paying \$ 80.- a share for e-Toys last fall. No kids voted for Jesse Ventura. Presumably, no one under 21 is buying all those Ab Masters that keep the nation's garage sales in such good shape. [Ron Charles, in CSM]
- **Speed Competition.** The old sailing ships held the steamboats at bay for a long time. They did so by getting bigger and faster, mostly faster, because that was more impressive. However, there was one problem. They eventually were so fast and so big, they could transport 500 pianos, but they could not maneuver too easily and in particular there was no good way for them to stop. So some major collisions eventually did them in. [John Gould in "Tall ships that aren't and really tall ships that were." CSM]
- **Small Print.** Doesn't small print just drive you crazy? Kurt thinks the advertising agencies must be staffed with frustrated lawyers! That would certainly explain their extensive use of small print. Or perhaps they have stock in companies that manufacture magnifying glasses.  
[Kurt N. Sterba (whoever) in World Radio Sep. 00]
- **Google Machine.** They built the site with parts from 6.000 off-the-shelf PCs – huge, unruly piles of spaghetti wiring and Lasagna-layered motherboards that actually run cheaper and faster than mess-free, million-dollar servers. [Chris Taylor, Mountain View in "Time"]  
This no. 1 web search engine takes its name from googol =  $10^{100}$ . It's the brainchild of Stanford University pals Larry Page (27) and Sergey Brin (26). At this time they claim to search for your term(s) in  $1.06 \times 10^9$  web pages which takes them usually just a fraction of a second! This is like going with a fine tooth comb through more than a million catalogs with a thousand pages each! *Ed.*
- **Federal Express.** "The concept is interesting and well-formed, but in order to earn better than a 'C', the idea must be feasible."  
[Response of a Yale professor to a paper by Fred Smith, who later founded Federal Express Corp.]
- **New Photo Chip.** The numbers of pixels for digital cameras, a measure of resolution for a picture has been steadily increasing from "VGA" (640x480) to multi-megapixel counts. Now Foveon, Inc. from Santo Clara, Ca. a company founded by pioneer Silicon Valley chip designer Carver Mead, announced a new chip which jumps the number of pixels to 16 million (4,096 by 4,096) and thus for the first time actually betters photographic film. This new chip also promises to be cheaper. It should be available in a year. [newspaper]

## Noise on the Magic Band

By Jon, WØZQ

(Good advice from zero land, ED.)

Sorry to hear abt ur noise problems Bryan. Here are some thoughts. Its normal to hear some transverter noise in your IF rig when you turn the transverter on. To see how much "noise" is from the transverter vs is from the antenna, disconnect the 6m antenna from the transverter, then turn the transverter on ... I think on the DEM transverter it is normal to see the increase in noise" by about an S unit or two. I think the DEM transverter has an internal adjustment if you wish to turn down the signal level to the IF rig. After this, connect the 6m antenna and see how much it jumps. On 6m, even in a quiet location, you should hear the noise level jump up some when you connect the antenna. Does it jump a little, or a lot. Compare these results with other DEM transverter owners and others who live in your area.

With respect to comparing results, look at the comparison of your antenna and its height above ground with those that you are comparing too. I run a 4 ele yagi at just 20' and I know that Rich, NØHJZ, who lives abt 10 miles to my west and is also using a 4 ele yagi, hears better on the band and I think its because his antenna is at 50'. Make sure that you are comparing apples to apples. Also, the fickle hand of propagation can drive you crazy.

Propagation to DX stations can change significantly over just several miles such that you may hear something, but your neighbors doesn't and visa versa. Station & antenna comparisons need to take place over a long period of time. Yes, run a GOOD bandpass filter just before the 6m transverter. In addition, you may want to try a bandpass filter at your IF frequency between the transverter and the IF rig too. Try to isolate the noise source. If its powerline noise, it can be isolated and fixed, but be prepared for a *long process*. Several years ago I worked with NSP to fix two noise sources in my neighborhood. They were causing me major problems on 6m and I could also see some snow on the TV screen when tuned to local stations. With a beam, you should be able to find the direction. Matt, KAØPQW, can also give you some pointers on how to isolate the problem. If you think its the powerlines, and you think you've found the direction, give NSP a call .... they have a troubleshooter for this. A good noise blanker can be helpful, but noiseblankers typically have problems with strong signals (like those often found when 6m is open).

My understand is that the Channel 2 transmitter is a problem for those that live on the north side of town. Using a good bandpass filter will help to eliminate overload, but if the noise source is in the 6m bandpass, that is a problem. You could call Channel Two and complain .... it wont change anything but it may make you feel better. I know that GJX was looking at going to vertical polarization to see if that would reduce this problem. You can try borrowing someone's noise blanker box like those discussed at Au'00 to see if it helps. I'd be interested in your findings. Hope this was helpful Bryan, good luck.

16 Jun 2000 Subject: Re: [NLRS] Help me kill my 6M noise!

By Jon, WØZQ      jcplatt1@mmm.com

# 10 GHz Report

by Donn Baker, WA2VOI, Minneapolis, MN [from NLRs]

We had a good day today (30 July-00), working on 10GHz paths, and learning stuff in general.

Gary, WB0LJC; Lenny, KC0EPX; Bob, W0AUS; Gary, WA0BWE; Bruce, W9FZ; Tom, N0ATV; Dayton, W0OZI, and myself met at Mounds Park at 0900 and checked equipment. One narrowband rig didn't receive, but other stuff was OK.

One team moved down [to](#) Idell Ave, west of Hastings, and set up to shoot NW back to Mounds Park. We've worked this path before, so knew it was "easy," at 14.8 miles. At both ends we had 18" dishes, and DEM transverters, barefoot. Run about 10mw. SOLID, S9++ signals both ways. Tried WBFM, (5mw and 17dB horns) and had similar results, S9. Frequency stability a problem but [it](#) worked.

Tom and I then headed south. Scouted a possible site (from maps) east of Hastings. No Go. Went over to north of New Trier. First site NG. One mile west, though was good. 24 miles back to Mounds Park. The visible horizon is the ridge west of Hastings that MN55 runs on ([a couple of miles south of the Idell Ave site](#)), and is about 10miles north. Bob, Bruce, Gary, and Lenny moved down to the Idell Ave and worked back up the river to Gary and Dayton at Mounds Park. Tom and I then worked Mounds Park once we got on the right frequency. 24 miles+ over an obstructed path. S9+ on both USB and NBFM. Didn't try the WBFM. Once I got located correctly on the map, (Bruce straightened me out) we also worked Bob at the Idell Ave site. This is a really obstructed path, as it is on the north slope of the highway 55 ridge. Bob's antenna had to be elevated somewhat to clear the ridge, but once he did so, signals were S9. Distance: 10 miles+

We then headed down to Soldiers' Memorial Park in Red Wing, while Bob, Bruce, Gary, and Lenny moved to Jacobs Ave just south of MN55. Good look down the Mississippi to Red Wing.

When we got to Red Wing and set up the narrowband stuff, I heard Bruce S9++ with no problem. No "coordination" was needed on 2m. 22 miles back to the Jacob Ave site west of Hastings. Worked Bob. Worked Gary on WBFM, although signals were weak. Tried hard to work back to St. Paul (Mounds Park), but NG. I wasn't expecting to work that path, but it would have been nice. Bob and Bruce (I think) both worked back to Mounds Park. Only 16 miles, but obstructed path again. This time from the south slope to the north.

All in all a very successful day. Learned a lot.

- 1) We came make improvements in the WBFM gear. The differences in signals were more than the difference in bandwidth. Using the 18" dishes will help.
- 2) With reasonable equipment (i.e., the DEM XVRTRs), there are a lot more things we can do. Obstructed paths, longer distances, and turning corners!
- 3) We still have problems with frequency and aiming antennas, but they are getting better.

We still haven't spent any time doing **scatter paths**; using buildings, etc., when a direct path (either LOS or obstructed) simply doesn't exist. Even with 10mw, a lot should be possible.

One other path that I'd like to try before the 10GHz contest is between the Burnsville Parkway, and Ridgeway Parkway (MN-36/I35W). Its almost LOS, but I suspect the best path will be to use down MPLS as scatter. From Ridgeway Parkway, a new building has blocked the LOS path (I think). Downtown is a couple of miles, and downtown is easily seen from Burnsville.

## August Rover Report

**UHF contest** (Aug.5/6). Operated Rover. Drove over 800 miles. Activated 8 grids. Active on 222 through 47G. 87 QSO's, 19K points. Murphy ruled, lost the 3.4 and 5.7 station, plus antenna damage. Lost the 2nd rover. Conditions were good the first 3 hours of the contest, and the last 2 hours. Otherwise, it was rain, more rain, and even more rain. What it did to signals, and stations that would normally be on? The only band that helped, was 10G. Heard some good contacts were made. Everything else was a washout. The last 2 hours, were an activity frenzy, totally ridiculous and everyone was trying to make up for lost time. At least with the sprints, it is one band, and 4 hours. This was crazy. 2 hours, 4 grids, 12 bands. I have to apologize to all those who called, and we wound up not making it. Need to find a driver, so I can devote the time to operating!

First Weekend of **10GHz + cumulative** (Aug.19/20), found a bunch of us running rover up in NW Michigan, along Lake Michigan EN74, 75, 64, 63. K2YAZ, WB9SPT, WB8TGY, and myself NE8I. I drove about 700 miles. The Lake Michigan shoreline offers a pile of dunes, bluffs, and tree free high ground, to work a pile of paths along, and across, beacons, plus a pile of active 10G+ stations. Much easier than trying to get signals through the trees inland. Weather was great. Cool, clear and sunny. Unfortunately, propagation conditions were extremely poor. Murphy was triumphant. The group held a mini microwave fest and workshop at K2YAZ EN74. This was WB9SPT's first experience on 10G. The group managed a pile of contacts. Most interesting, (in my opinion) were WB8TGY on 10G, running only a LO+ bare mixer, 2ft dish, managed an 11 KM contact. WB8TGY and myself managed a 47GHz contact of 8 KM. Normally not much to brag about. I was running a DB6NT, 150 microwatts into a 1FT dish. WB8TGY, was running the 150 microwatt DB6NT using only the open end of the waveguide as antenna.

Plans for the 9/11 September VHF contest, given reasonable WX, Saturday I plan to run Rover from EN75, 74, 64, 63, 62, 72 down along US-31 Lake Michigan to Muskegon, then East on I-96. Sunday, into Ohio Maybe to Findlay Swap. EN 82, 81 and not certain from there. Maybe 80-70-71. Depends on activity and WX. 6M through 47GHz. When mobile, only 6M through 2.3. 3.4 and up, I have to stop and set up.

Plans for the second weekend XG+ (16/17 Sep.) cumulative, given cooperative WX, plans are to try going to along the Michigan side of Lake Michigan Saturday. WB9SPT is planning to run along the Wisconsin side. Sunday the Ohio side of Lake Erie. Will finalize plans on Thursday evening before the contest, and dump out a note on the VHF reflector.

The August 10G+ cumulative and UHF contests and Sept. VHF and 10G+, are just too close together. They need to be a good two weeks apart. Not one weekend after the other.

73 de Lloyd J. Ellsworth NE8I

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LM-ARRL, LM-AMSAT, Seti League, NTMS, 10X481, SMIRK4720, RedRyder#10

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## **Microwave Update (29 Sep Weekend) Speaker List: (so far)**

1. Millimeter Surplus. Will Jensbv. WOEOM.
2. 13 cm Gs9B Amplifier Update - August 2000. Ed Krome. K9EK.
3. An Update of Laser Transceiver for the ARRL 10 0Hz and Up Contest, Lilbum R. Smith, W5KQJ.
4. Portable 10/24 0Hz Transverter. Dave Meier. N4MW.
5. Thoughts on the Psychology of Finishing your Microwave Station or- How to 'Shoot the Engineer' and Get Building. Doug Millar, K6JEY.
6. Optimizing TWT Power Output for Narrow Band CW/SSB Operation, James W. Vogler, WA7CJO.
7. A Tutorial for Using Sonnet Lite. James C. Rautio, AJ3K.
8. Large Dish Cassegrain Development Using CAI) & Spreadsheet For Millimetric Bands & Practical Implementation. Martin Farmer. G7MRF.
9. The Allure of Microwaves or A Survey of Radio Amateurs who Use Microwave Bands, Tom Williams. WAIMBA.
10. To Be Announced. Dave Olean. KIWHS.
11. Polarization Effect of EME. Al Katz, K2UYH.
12. Antenna Optimization with the use of Genetic Algorithms. Walt Bohman. K3BPP.
13. Millimeter-Wave Proliferation Program, Narrow Band 24 GHz, Rod Roderique, WAOQIL'K3QI and Jeff Kruth. WA3AKR
14. 13 cm Quick and Easy. Ron Marosko. K5LLL.
15. Restoring a HP 8410 Network Analyzer, KB2VSQ.
16. To be announced, Steve Kastro, N2CEI.
17. Periscope Antenna Systems. 10 GHz without Feedline Loss. Paul Wade. W1GHZ.
18. Using Surplus 23 0Hz Modules at 24192 MHz. Al Ward. W5LUA.
19. Will This Rover Site Make the Path?. Richard Frey WA2AAU.
20. PC Board Log Periodic Arrays. Kent Brittain. WAS VJB.
21. Dish Construction & Mounting Techniques. Tom Whitted. WA8WZG.
22. A 100 Watt 1296 MHz Amplifier. John Sortor. KB3XG.
23. Use of 10 GHz TWTA's on 24 GHz. James W. Vogler. WA7CJO.

### **Surplus List: (so far)**

- |                              |                      |
|------------------------------|----------------------|
| 1) Fred Chassey              | 7) LB Metals         |
| 2) Dillsburg Aeroplane Works | 8) Surplus Al        |
| 3) Fazzio's                  | 9) The Surplus Shed  |
| 4) Fertiks                   | 10) SSB Electronics  |
| 5) Haniflms                  | 11) N2CEI Fest&Party |
| 6) Kentronix                 |                      |

This sounds like fun. Steve will have a tent. food. and beer, not to mention some prime microwave goodies in his back yard on Thursday. Other "vendors" that will be hauling microwave junk to Steve's place are: KIFO. WA8WZG. W5ZN. WA8RJF. WORSJ, WB2ONA. K1WHS, W5LUA, W1GHZ. N1DPM. and waiting on others.

### **How to Locate Lost Model Airplanes**

I am interested in very small transmitters and very good receivers for direction finding of lost small rubber-powered model planes. I have the original 73's article by Ken Bauer (May 93) and also a more recent article by Bauer. He describes a surface mount transmitter about 1/2 by 1-1/4 inches. I have two of his boards and am ordering parts for the receiver. I am looking at Rick Campbell's direct conversion stuff. I am ordering his miniR2 and the LM2 kit from Kanga ([www.bright.net/~kanga/kanga/](http://www.bright.net/~kanga/kanga/)) and planning to build for 222 MHz with a VXO. Also may build his Binual I-Q receiver (QST Mar 99). Bill Kelsey sells these kits mostly for QRP'ers. I have also established e-mail contact with Kent Britain who has published lots of fine work on GaAs low noise amps, etc. in QST. I have obtained designs for his small Yagi antennas at the Clear Lake site: [www.clarc.org](http://www.clarc.org). These are simple to build Yagis with no need for gamma match stuff. I built one for 222 MHz and it seems to work fine for receive- now working on a 222 pre-amp. Have not checked SWR as I do not have the capability for 222 MHz. If anyone is interested in this area I would be glad to discuss further what I am doing. Stu, W9CBX ( e-mail: [gscummins@att.net](mailto:gscummins@att.net))