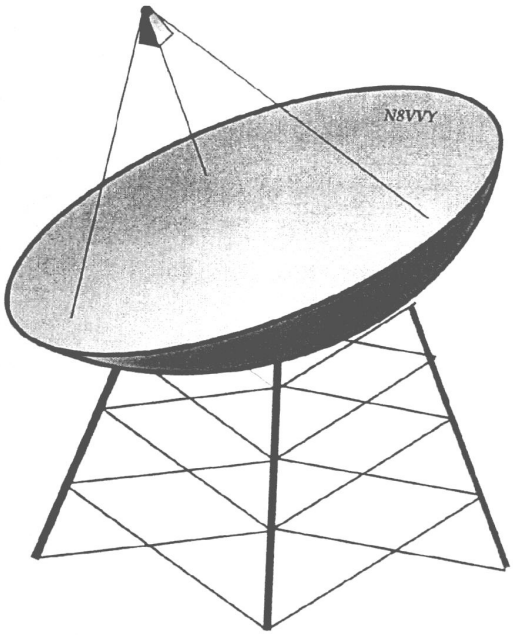
ANOMALOUS PROPAGATION

Newsletter: ***The Midwest VHF/UHF Society***



Editors:
Gerd Schrick, WB8IFM
4741 Harlou Drive
Dayton, OH 454 32
(937) 253-3993
WB8IFM@ARRL.net

Steve Coy, K8UD
3350 Maplewood Dr.
Beavercreek, OH 45434
(937) 426-6085
K8UD@ARRL.NET

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

MIDWEST VHF-UHF SOCIETY

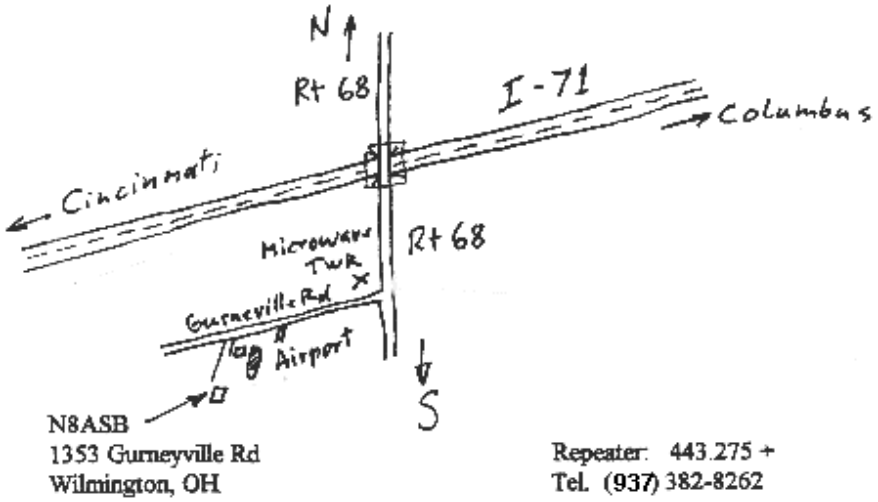
Vol. 27 No. 6 www.mvus.org Aug 2013

Beacon: 1296.079 W8KSE EM79ur Dayton, OH---- 2W to Big Wheel at 800' AGL.

Contents

The Midwest VHF/UHF Society has noise sources available in two frequency ranges: 50 MHz to 3 GHz, and 3 GHz to 11 GHz. Both versions are fully assembled and tested with ENR data provided. The lower frequency version is currently in stock at $50 including shipping in the USA. The 11 GHz version is $95, but delivery is about 8 weeks ARO. Contact N8ZM at **n8zm@mvus.org** for more details.

***MVUS Picnic & Measurement on Sat* 24 August at Daun's,N8ASB**



Pres. Tom Holmes, N8ZM
Vice Pres. Bob Mathews, K8TKQ
Secretary, Steve Coy, K8UD
Treasurer, Gerd Schrick, WB8IFM

De N8ZM.I am writing this column under duress, as Gerd called me last night to tell me he wanted it by noon today, in addition to which there are workmen all over the outside of the house repairing siding and painting, creating a lot of nailing and sawing noises. So if these lines get jumbled, blame the guy with the big hammer.

The big news is that our annual picnic is coming up on the 24th, just over a week away as I write this. We will again be at the home of Daun, N8ASB, next door to the Clinton County airport NW of Wilmington. Specifically at 1353 Gurneyville Road if your GPS has a need to know. I have been advised that we will be having several guests from the NE Ohio region, so plan to make some new acquaintances and renew some existing ones.

MVUS will provide the hamburgers and brats, as well as bottled water and soda. If you feel like it, bring a snack, side dish, or dessert, but only enough for maybe a half dozen people as we always have more than enough. If you have a beverage preference other than water or soda, it's BYOB. And there is at least one birthday in August, so limber up your vocal chords for the requisite rendition of Happy Birthday for Marilyn Dakin, XYL of Red, W8ULC.

Of course it wouldn't be the MVUS picnic without the tech session, and so far we have people asking for antenna measurements (impedance and pattern) up to 2.4 GHz and including at least one TV antenna (400 to 700 MHz), as well as some HF frequency inductance measurements. Also at least one preamp is coming for gain and NF testing. Let me know ASAP if you have any other gadgets you'd like to test to troubleshoot so that Daun and I can be prepared. We should be good to 20 GHz or so. And down to DC as well, so don't get hung up on the VHF/UHF thing.

Starting time is 10:00 AM, and I'll probably get prodded to start cooking before 1:00 as folks get mighty hungry after a couple of hours of sitting and talking. And after we are all in a stupor from overeating, we will have the annual re-election of officers. I expect the usual bunch of railroaded volunteers: WB8IFM Gerd for Treasurer, K8UD Steve for Secretary, K8TQK Bob for VP, and me for the "buck stops here" job. But do not be deterred from entering the running, some fresh ideas and people to make them happen are always welcome. *

On page 9 in this issue I'll have a short write-up on the recent CQ-VHF and ARRL UHF contests that some of us enjoyed.

Due to the picnic being the day after our regular meeting date, there will be no Friday night MVUS meeting this month.

See you at Daun's! Tom, N8ZM.

*** We could use** someone to keep track of contests and report monthly 1/2 to 1 page. ++ Any other help with the newsletter...

For antenna measurements I will bring masts and antennas for **70, 33, and 13 cm** maybe also 2m and 23cm. Gerd, WB8IFM

Don't forget:

MUD Oct. 18/19 Morehead KY

AMSAT Nov. 1 – 3 Houston TX

This and That 8-13

Quintillion. That is 10^{18}, so an estimated 2.5 quintillion bytes of data are created daily. Thanks largely to the proliferation of smartphones and other mobile devices; 90% of all the digital data in the world was created within the last two years. [New York Times]

Insects..mmm! The average American eats one to two pounds of dead insects and insect parts a year that are contained in such foods as pasta, spinach,broccoli, cerial, rice, and beer. [FDA]

New Cadillac. "The definition of ambivalence is watching your mother-in-law drive over a cliff in your new cadillac." [David Mamet]

Random Inspiration! "Whatever theory of education we adhere to--and new ones emerge with wearying regularity--we'll be doing the future a big favor if it leaves a little room for random inspiration." [James Graff]

Efficient Crickets. Crickets are 12 times more efficient than cows in converting grains and other nutrients into meat! [U.N. Food and Agricultur Organisation]

Plain old Yankee Thrift. We have a limited income, but we own our home and manage to put money in the bank. Our secret: don't buy it unless you need it, don't buy it new if used will do, and don't buy it at all if you have to use credit. [Newspaper reader].

Black Hole. A lack of structural online boundaries tempts users into spending countless hours on the Web. "Checking Facebook should only take a minute." Those are the famous last words of countless people every day, right before getting sucked into several hours of watching cat videos, commenting on Instagrammed sushi lunches, and Googling to find out what ever happened to Dolph Lundgren. [Tia Ghose and LiveScience Scientific American]

More is Better? A New York City woman set off 21 bug bombs inside her appartment, causing an explosion that collapsed her five-story building, injuring 14 people. [The Week, July 26, 2013]

Earthquakes. How often does an earthquake hit? About once an hour. So say some experts. Others say minor tremors only detectable by instruments occur more frequently. [Newspaper account]

Miami Valley (the Dayton area) Half the people there wash their hair once a day, drink coffee for breakfast, and do not play the lottery. [1997 Newspaper survey]

Advice for Writing: 1) Read ferouciously. 2) Write every day. 3) Finish what you write! [Greg Belliveau -- 7-2013]

Inventions. "Be alone—that is the secret of invention; be alone, that is when ideas are born." [Nicola Tesla]

Devils Mountain

History from Wikipedia --- A Cold War Story

The **Teufelsberg** (German for *Devil's Mountain*) is a hill in Berlin, Germany, in the Grunewald locality of former West Berlin. It rises about 80 metres (260 ft) above the surrounding Brandenburg plain, more precisely the north of Berlin's Grunewald Forest. It was named after the Teufelssee (i.e. Devil's lake) in its southerly vicinity.

It is an artificial hill with a curious history: It was heaped up after the Second World War from part of the rubble of **Berlin,** approximately 75,000,000 m^3 (98,000,000 cu yd) all over the city, during the following twenty years as the city was cleared and rebuilt. After the Communist putsch in the city parliament of Greater Berlin (for all four sectors of Berlin) in September 1948, separate parliaments and magistrates (German: *Magistrat von Groß Berlin*; city government) were formed for East and West Berlin. This also ended much of the cooperation between West Berlin and the state of Brandenburg, surrounding West Berlin in the North, West and South.[1]

While part of the rubble from destroyed quarters in East Berlin was deposited outside the city boundary, all the debris from **West Berlin** had to be dumped within the western boundary.[1] Due to the shortage of fuel in West Berlin the rubble transport stopped during the Berlin Blockade.[2]

Its origin does not in itself make Teufelsberg unique, as there are many similar man-made rubble mounds in Germany (see Schuttberg) and other war-torn cities of Europe. The curiousness begins with what is buried underneath the hill: the never completed Nazi military-technical college (Wehrtechnische Fakultät) designed by Albert Speer. The Allies tried using explosives to demolish the school, but it was so sturdy that covering it with debris turned out to be easier. In June 1950 the West Berlin Magistrate decided to open a new rubble deposal on that site.[1] The deposal was planned for 12,000,000 m^3 (16,000,000 cu yd).[1]

With the end of material shortages after the blockade the deposal was accessed by an average of 600 trucks daily, depositing 6,800 m^3 (8,900 cu yd) a day.[1] On 14 November 1957 the ten millionth cubic metre arrived.[1] When in 1972 the deposal was closed about 26,000,000 m^3 (34,000,000 cu yd) of rubble, and to a lesser extent construction waste had been deposited there. The Senate of Berlin (West) then decided to plant greenery on it. The Teufelsberg has since been as high as the highest natural hill (Großer Müggelberg, cf. Müggelberge) within the Berlin boundary and was the highest in West Berlin.[3]

Westerly slopes of the Teufelsberg were already earlier used. In February 1955 a 24 m long (79 ft) ski jump opened, designed by the ski jumper and architect Heini Klopfer.[4] On 4 March 1962 a bigger ski jump opened offering space for 5,000 spectators.[4] After 1969 no more big ski jumps were held and the ski jumps fell into decay and were removed in 1999.[4]

Teufelsberg has been a location for several recent movies and a television program, such as The Gamblers. The finale of the German vampire film We Are the Night takes place on top of Teufelsberg. As in the whole of Grunewald Forest, wild boar frequently roam the hill. And a 2nd season episode of Covert Affairs titled Uberlin.

Listening station

The US National Security Agency (NSA) built one of its largest listening stations on top of the hill, rumored to be part of the global ECHELON intelligence gathering network. "The Hill", as it was known colloquially by the many American soldiers who worked there around the clock and who commuted there from their quarters in the American Sector, was located in the British Sector. Prior to establishing the first permanent buildings there in the very late 1950s, Mobile Allied listening units had driven to various other locales throughout West Berlin hoping to gain the best vantage point for listening to Soviet, East German, and other Warsaw Pact nations military traffic. It was also used to supervise the West Berlin Air Corridors. One such unit drove to the top of Teufelsberg and discovered a marked improvement in listening ability. This discovery eventually led to a large structure being built atop the hill, which would come to be run by the NSA (National Security Agency). At the request of US government, the ski lifts were removed because they allegedly disturbed the signals. The station continued to operate until the fall of East Germany and the Berlin Wall, but after that the station was closed and the equipment removed. The buildings and radar domes still remain in place.

During the *NSA* Operations some other curious things happened: It was noticed that during certain times the reception of the radio signals was better than during the rest of the year. The 'culprit' was found after a while: it was the Ferris wheel of the annual German-American *Volksfest* Festival on the *Hüttenweg* in Zehlendorf.[citation needed] From then on, the Ferris wheel was left standing for some time after the festival was over. While there were rumors that the Americans had excavated a shaft down into the ruins beneath, that was never proven, and was likely based on reports that those who maintained equipment in one of the first enclosed antenna structures accessed the upper levels of the inflated dome via an airlock that led to a "tunnel" that was embedded in the structures central column. Speculation as to what might have existed within the highly restricted area frequently gave rise to rather elaborate but false rumors; one theory stated that "the tunnel" was an underground escape route.

In the 1990s, as Berlin experienced an economic boom after German reunification, a group of investors bought the former listening station area from the City of Berlin with the intention to build hotels and apartments. There was talk of preserving the listening station as a spy museum. Berlin's building boom produced a glut of buildings, however, and the Teufelsberg project became unprofitable. The construction project was then aborted. As of the early 2000s, there has been talk of the city buying back the hill. However, this is unlikely, as the area is encumbered with a mortgage of nearly 50 million dollars. Recently the site has been vandalized heavily since the company abandoned the project. The site is currently fenced off and manned by guards.

Following the announcement of plans to raze the facility and reforest the hill,[5] talk of preserving the facility resurfaced in 2009, spearheaded by the Field Station Berlin Veterans Group, which hopes to have the memorial named in honor of Major Arthur D. Nicholson, the last military Cold War casualty, the U.S. Military Liaison Mission tour officer who was shot and killed by a Russian sentry near Ludwigslust on March 24, 1985.[6] After no further construction was done after 2004, in 2006 the hilltop was categorized as forest in the land use plan of Berlin, thereby eliminating the possibility of building.[7]

Russian Meteor Blast 'Heard' Around the World

Becky Oskin, OurAmazingPlanet Staff Writer | Feb 19, 2013

The shock wave from Friday's (Feb. 15) meteor explosion above Russia sent ***subsonic waves*** through the atmosphere halfway around the world.

Up to 11 sensors in Greenland, Africa, Russia's Kamchatka Peninsula and other far-flung regions detected the Russian meteor blast's infrasound, or low-frequency sound waves. The sensors are part of the global network of 60 infrasound stations maintained by the Comprehensive Nuclear Test Ban Treaty Organization (CTBTO).

Infrasound's long wavelengths (about 20 to 0.01 Hertz) can travel far distances in the atmosphere, at frequencies humans can't hear. Elephants, whales and even pigeons use infrasound for communication and navigation, scientists have discovered.

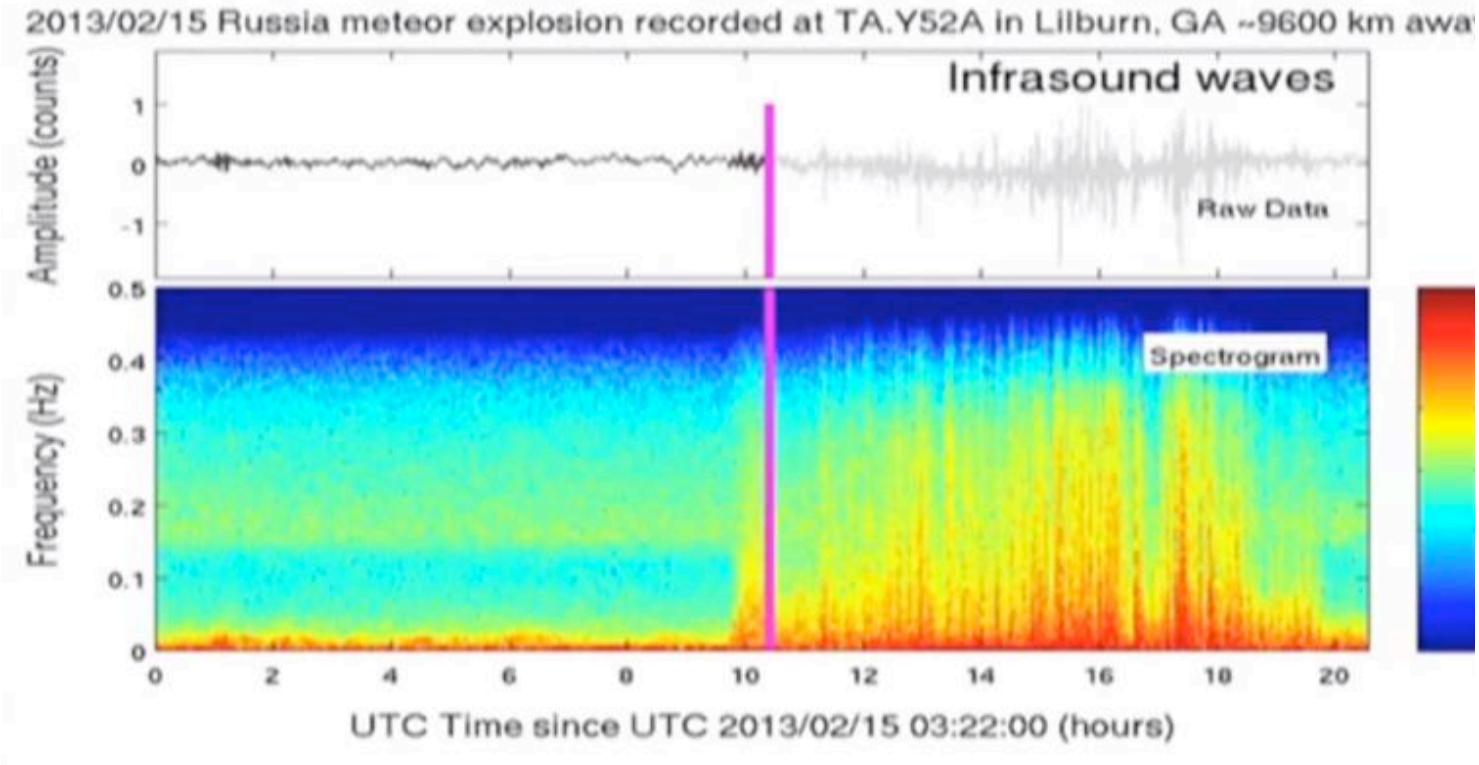
The CTBTO relies on Infrasound arrays to help determine the location and size of atmospheric explosions. Man-made explosions, such as bombs, produce a different infrasound pattern than natural fireballs like shattering meteors.

Based on scrutiny of infrasound records, NASA scientists concluded the fireball released about 300 kilotons of energy, said Bill Cooke, lead for the Meteoroid Environments Office at NASA's Marshall Space Flight Center in Huntsville, Ala.

That's about 20 to 25 times more powerful than the atomic bombs dropped in World War II, but still smaller than Siberia's Tunguska meteor explosion in 1908, which released 10 to 15 megatons of energy (equivalent to the Castle Bravo device, the most powerful atomic bomb tested by the United States).

"This was a moderate explosion," said Paul Chodas, research scientist in the Near Earth Object Program Office at the Jet Propulsion Laboratory in Pasadena, Calif.

Reach Becky Oskin at boskin@techmedianetwork.com.



Infrasound signals associated with the Russian meteor impact on February 15, 2013, recorded nearly 9,600 km away in Lilburn, Georgia. The sound took about 10 hours to travel from Russia to Georgia. (Credit: The seismic data is distributed by the IRIS DMC, TA/USArray network/Image from video courtesy of Georgia Institute of Technology)

Hearing the Russian Meteor, in America:

Sound Arrived in 10 Hours, Lasted 10 More

May 3, 2013 — How powerful was February's meteor that crashed into Russia? Strong enough that its explosive entry into our atmosphere was detected almost 6,000 miles away in Lilburn, Ga., by infrasound sensors -- a full 10 hours after the meteor's explosion. A Georgia Tech researcher has modified the signals and made them audible, allowing audiences to "hear" what the meteor's waves sounded like as they moved around the globe on February 15.

Lilburn is home to one of nearly 400 USArray seismic/infrasound stations in use in the eastern United States. They are part of a large-scale project named "Earthscope," an initiative funded by the National Science Foundation that studies Earth's interior beneath North America. The stations are mainly deployed to record seismic waves generated from earthquakes, but their sound sensors can record ultra long-period sound waves, also known as infrasound waves.

The human ear cannot hear these infrasound signals. However, by playing the data faster than true speed, Georgia Tech faculty member Zhigang Peng increased the sound waves' frequency to audible levels. The Incorporated Research Institutions for Seismology's Data Managment Center provided the data.

"The sound started at about 10 hours after the explosion and lasted for another 10 hours in Georgia," said Peng, an associate professor in the School of Earth and Atmospheric Sciences. He's confident that the sound is associated with the meteor impact because a slow propagation of the sound waves can be seen across the entire collection of USArray stations, as well as other stations in Alaska and polar regions.

"They are like tsunami waves induced by large earthquakes," Peng added. "Their traveling speeds are similar, but the infrasound propagates in the atmosphere rather than in deep oceans."

Scientists believe the meteor was about 55 feet in diameter, weighed more than 7,000 tons and raced through the sky at 40,000 miles an hour. Its energy was estimated at 30 nuclear bombs. More than 1,500 people were hurt.

Using the same sonification process, Peng also converted seismic waves from North Korea's nuclear test on February 12 and an earthquake in Nevada the next day. Each registered as a 5.1 magnitude event but created different sounds. The measurements were collected by seismic instruments located about 100 to 200 miles from each event. For further comparison, Peng has also created a seismic recording of the meteor impact at a similar distance.

"The initial sound of the nuclear explosion is much stronger, likely due to the efficient generation of compressional wave (P wave) for an explosive source," said Peng. "In comparison, the earthquake generated stronger shear waves that arrived later than its P wave."

Peng says the seismic signal from the meteor is relatively small, even after being amplified by 10 times. According to Peng, this is mainly because most of the energy from the meteor explosion propagated as the infrasound displayed in the initial sound clip. Only a very small portion was turned into seimsic waves propagating inside Earth.

This isn't the first time Peng has converted seismic data into audible files. He also sonified 2011's historic Tohoku-Oki, Japan, earthquake as it moved through Earth and around the globe.

The seismic and sound data generated by the meteor impact and other sources can be used to demonstrate their global impact. Scientists are also using them to better understand their source characterizations and how they propagate above and inside Earth.

Story Source:

The above story is based on materials provided by Georgia Institute of Technology.

Recent VHF/UHF contest activities at N8ZM

By Tom, N8ZM

Most of you are probably familiar with the three ARRL VHF contests held yearly in January, June, and September. There are also other events in the VHF and up world at other times throughout the year aimed at keeping our much sough-after bands active. For many years a team of operators has put a contest effort together for the three well-known ARRL contests using my call, N8ZM, mainly because it is the shortest one of the group. More recently we have built our station performance to the level where we felt we could make a decent showing in some of the other contests, like the CQ-VHF held in July and the ARRL UHF contest held in August.

This summer we entered both the CQ-VHF and the ARRL UHF contests. The CQ test is for only 6m and 2m, while the UHF test is for all bands above 222 MHz. Our 6m and 2m stations are quite competitive these days and with the help of a bit of a band opening, and even though we only worked half of the CQ contest period, we did quite well. We also scored our first digital contacts thanks to the knowledge and skills of Randy, WB8ART.

For the UHF contest we had rigs for 222, 432, and 1296. While we did not roll up a huge score, again operating only half of the contest period, we were happy with the 44 contacts we did make, including 5 on 1296. And we managed a couple more digital QSO's too. Mostly, we got a chance to shakedown our UHF equipment for weaknesses. Of course MVUS VP Bob, K8TQK, whupped us since he has more bands above 222 and better skills, not to mention he knows every station who is active and just has to hear them cough into the mike to know who he is working.

We'll be on in the September ARRL event (14^{th} -15^{th}), so get your VHF station in operating order or come up to our site and work with us. Either way, we will welcome your participation.
Our group of operators and builders includes at various times: N8ZM, W8PLZ, WB8ART, KB8ZR, W8ULC, WB8TDG, K7DN, K8TQK, N8IDS, KD8JZR, WB8UCD and many others who have contributed to the effort over the years.

Rover Activity during the ARRL 3/4Aug ARRL UHF Weekend

from the MAMS (Mid America Microwave Society) Reflector

W9SNR/R UHF Contest Results

Just finished typing in my log - no error or dupe checking.

Summary sheet from VHF-DX
Grid(s) Activated: EN51 EN52 EN62

	QSOs	Pts/QSO	QSO Pts	Mult
222 MHz	44	3	132	16
432 MHz	49	3	147	15
902 MHz	19	6	114	9
1296 MHz	26	6	156	11
2304 MHz	7	12	84	4
3456 MHz	6	12	72	4
5760 MHz	2	12	24	2
10368 MHz	3	12	36	3
Total				
All Bands	156		765	64

64 GRIDS ACTIVATED 3 Rover Scoring Used
W9SNR/R Jim, CLAIMED SCORE: 51,255

ARRL UHF Contest 3/4 Aug 2013

Call: W9SZ/R Zack Widop
Class: Rover LP
QTH: Illinois
Operating Time (hrs): 10

Summary:

Band	QSOs	Mults
222:	15	7
432:	17	7
903:	4	4
1.2:	6	4
2.3:	4	3
3.4:	4	3
5.7:	2	2
10G:	2	2
Total:	55	32

Total Score = 10,302

Club: Society of Midwest Contesters

Commentaries next page

Rover Commentaries

DE Jim, W9SNR

Thanks to W9SZ/R for activating both EN50 and EN60. With 8 bands apiece, that adds up to 16 multipliers for one station. Other notable rovers include K9JK/R, K9GY/R, and 1 QSO with K0PG/R & K9ILT/R. I know there were many other rovers, but most were out of range for me.

Conditions were really dead on Sat. afternoon, but picked up quite a bit after sundown. Sun. morning was also good. Best DX was probably with Todd, N4QWZ in EM66. Also many contacts with K8TQK and W0UC, who are also a way's out. Most unusual contact was 10 GHz SSB QSO Sun. morning with W9SZ in EN60. We were initially struggling on 5.7 & 10 GHz, but signals turned out to be very strong once we got our dishes lined up.

De Zack, W9SZ

Murphy seemed to be out to get me in this contest. Although I managed to avert him at every turn, I have never had so much go wrong in a single contest.

I decided to try being a Rover in this year's contest in a limited sense - to operate from EN50 on Saturday and from EN60 on Sunday. To start out, on Saturday I got to my favorite hill in EN50 a bit late. When I got all the antennas out of the car, I found the last loop on both my 902 and 1296 loop Yagis had broken off. Too many times throwing them into the car took its toll, I guess. Missing that one loop on each antenna didn't seem to noticeably affect their performance, though. The power lead to the feedthrough on my 432 MHz transverter broke off. I used a clip lead to bypass that.

Conditions were not so great. 902 and 2304 MHz seemed particularly poor. I did make quite a few microwave contacts, though. Right after sunset on Saturday I worked W9SNR/R all the way through 10 GHz with signals getting better on each new band up. I wish I'd taken 24 GHz (I forgot it!) because we just might have made in on that band. I also forgot my headband light and got the last of my equipment packed into the car on Saturday just as itgot too dark to see anything.

On Sunday I planned on operating from a hill in EN60af. When I got there, I found I was completely surrounded by 8-foot tall corn. I decided to go looking for a better spot. I finally found one an hour later, in EN60an. When I got set up, I noticed my triband dish feed had developed a crack where the center wire of the semirigid hardline supporting the feed attached to the feed. By using some tape from the opposite side of the feed to the bottom of the dish, pulling down slightly on the feed, I found it would make contact enough to work for the moment. Then I got reports that my signal on 2304 and above was chirping or swooping in frequency. That indicated I was losing phase-lock on the LO. I found that the coax braid on the SMA connector to my 10 MHz reference source had broken all the way around. I managed to use a piece of wire to temporarily fix that.

Conditions were moderate again on Sunday. I was not running much power on any band, 10 watts or less on most. A lot of stations I could hear couldn't hear me. But I did work several stations over again plus a few new ones from that location. I made more microwave contacts with W9SNR/R and K2DRH.

Finally, after the contest ended I got everything packed up and left the site. I got about two miles when my right rear tire went "BANG!" and was instantly flat. I couldn't get the jack to fit under the car. I managed to improvise; I used a couple of my mast sections as a lever to pry the car up a few inches to get the jack under it. I got the tire changed but had to drive 45 miles on a donut tire.

I believe I worked most of the stations I worked last year in this contest. I got to give them two grid squares instead of one. I was told by several that they didn't work anyone else in EN60. At least the weather was just about perfect. No rain and virtually no wind. Now I have to fix all the broken equipment and hope Murphy is a little kinder to me next time.