

Northwest Indiana DX CLUB

Volume 4, Issue 6

June 2016

President's Corner

Our next meeting will be June 18. Place is the same, Viking Chili Bowl backroom. Time is Noon. Hope to see you there. Bring something to discuss at the June meeting or a show and tell item.

As I write this it has been three work days since my career as a teacher was officially finished. Of course, they say you never stop learning or teaching.

My friends that are retired tell me that I will not have time to sit around, as I will always be busy. I hope so, as I don't want to leave this life just yet. I haven't made the Honor Roll, hi hi.

Enjoy the summer and I hope you all can make the meeting.

73

**John, W3ML
Happy DXing!**

Don't Forget

DXCC CARD CHECKING

Doctor Richard Lochner, K9CIV has been appointed an Official ARRL DXCC Card Checker. Contact Rich to schedule an appointment for card checking.

You may email him at k9civ@arrl.net for details on how to mail your cards to him, if you desire to go that route.



NWI DX Club Website

<http://nwidxclub.weebly.com/>

INSIDE THIS ISSUE

- 1 President Speaks
- 2- Member News/DX News

Member News

If you have any news to tell, please send it to me so I can send it to the group.

QSL Card of the Month

A collection of the old, the new, the rare, the exotic or just interesting QSL Cards

United Nations Headquarters – 4U1UN

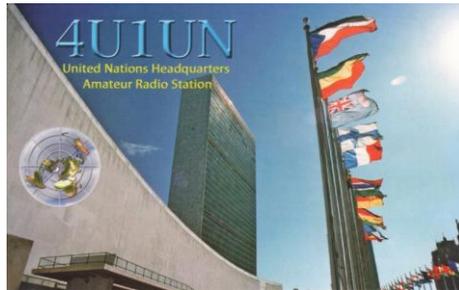
Club Log 2016 Most Wanted Rank: #47

CQ zone: 5 ITU Zone: 8

Continent: NA

Location: 40.45°N 73.58°W

Beam Headings from Northwestern Indiana: 51°/231° 677 mi / 24182 mi



The headquarters of the United Nations is a 17 acre complex along the East River on Manhattan Island in New York City. This site has served as the official headquarters of the United Nations since its completion in 1952. Although located in New York City, the building is extra-territorial through a treaty agreement with the U.S. government. In exchange for local police, fire protection and other services, the United Nations agreed to acknowledge most local, state, and federal laws.

For award purposes such as DXCC, the UN headquarters is considered a separate "entity". While UN organizations have their own internationally recognized ITU prefix-4U, only contacts made with the UN Headquarters in New York, and the ITU in Geneva, Switzerland count as separate entities. Other UN organizations and operations such as 4U1WB-the World Bank in

Washington, D.C., 4U1VIC in Vienna, Austria and the various peacekeeping and aid missions count for the country they are located in.

The UN Staff Recreation Council through its United Nations Amateur Radio Club operates amateur radio station 4U1UN and for a long time had a facility located in the Council's space on the 40th Floor (the top floor) of the building. The station was dismantled in 2010 for renovations to the building. Security concerns now stand in the way of its returning. Most antennas have been removed from the roof and the equipment stored. The exception is the NCDXF/IARU beacon that resumed operation in 2014. Any current operations are performed "field day style" with minimal antennas from temporary setups (tents) in the ground level garden among the statuary. This is hardly an ideal location for operations given the adjacent tall buildings and urban RFI interference. For security reasons, the authorities usually restrict operations to daylight hours.



4U70UN Operation – October 24-25, 2015

The United Nations Amateur Radio Club will occasionally use special call signs with the prefix 4U and ending in UN to commemorate various events at the UN. The latest special call was 4U70UN this past October celebrating the 70th year of the UN existence. The last time 4U1UN was on the air was January 23-25, 2016 during the CQ Worldwide 160 Meter CW contest.

Over the years, 4U1UN has issued, including special events, at least 27 different styled QSL cards. A small sample is shown above. One of the samples is a fake! Did you spot it? Hint-it is the card that came from Russia. The card didn't make it past the ARRL DX Desk card checkers.

- 73's and Good DX -

Review Update

The Mini60 (SARK-100) Antenna Analyzer

Now it has software that works!

By Steve Mollman-KD9HL



One of the most powerful tools an amateur has is the antenna system. Care and feeding of that system is important and a very useful gadget to help do that is an antenna analyzer. In the November 2013 issue of this newsletter we gave a review of the SARK-100 Antenna Analyzer, also known as the Mini 60 or in a stripped down version is known as the MR100 Antenna Analyzer.¹

It seemed to do just about everything most HF operators needed for antenna measurements and had many additional capabilities waiting on the sidelines. The listed abilities of the Mini60 analyzer are quite impressive. The SARK 100 version has nearly identical specs.

This is a very small package. It is about the size of a cigarette pack. An important point is that the frequency range is 1-MHz to 60-MHz. This analyzer is not usable on the VHF bands. Many of the popular competing analyzers such as the MFJ-259B do work on those frequencies. This is not a handicap for me because I don't operate on the VHF bands.

¹ The MR100 apparently is a stripped down version that has the components installed on a circuit board/ chassis but does not include a case. No mention is made in the ads for computer interface.

Operation has been very simple. Just connect to the antenna feed line, select the band and parameter mode to be checked and then tap the Scan button. In a few seconds it has done its thing and you have your readings.

EA4FRB, the designer of this instrument, had software developed that was supposed to allow, through a USB connection, downloading of the various measurements to an Excel spreadsheet. The EA4FRB software seems to be written for some form of MS-DOS and I was never able to get it to run on either of my Windows 7 64-bit computers.. Other users had also mentioned that they too were stymied or if they did get it to run, it was cumbersome and awkward to use. Possibly the original software will work with XP or other older forms of Windows.

Having software that would store data in both a graphical and tabular form would be handy, as I like to periodically record the SWR of my antennas at various frequencies in order to detect any change or possible problems. I had to manually enter the information to a spreadsheet.

I found this antenna analyzer very useful, reliable and a bargain when compared to the pricing of its competitors. As something promised but not delivered, the software issue was the only downside

Steve Hughey-AK4R,² a Mini 60 user, had the same problems and decided to do something about it. He rewrote and enhanced the software by developing a Windows version. His software is available two forms, a direct download via the Internet or on a CD that is mailed to the purchaser. AK4R is selling his software on eBay for a nominal \$5.50 for the download version and \$19.95 for the CD!³

Installing the software in the direct download form is not a “Plug-n-Play” operation. You are required to have a free program called “Dropbox” installed on your computer.⁴

After “Dropbox” is installed and up and running, you can download the Zip formatted software.. Not being familiar with “Dropbox” I had some difficulty moving the file onto my computer. Once it was on my computer it was necessary to unzip the files, which occurred seamlessly.

The next step was to install the drivers for the USB interface. Windows 7 attempted this and came up with a message that the driver installed incorrectly but it could attempt to fix the problem. I took that option and Windows did quickly fix it.

After that, by following AK4R’s instructions, the program was installed and was soon up and running.

² Stephen D Hughey
1549 Johnson Branch Road
Pulaski, TN 38478
shughey@bellsouth.net

³ To locate the seller’s eBay site, do a search for the following “SARK 100, Mini60, MR100 Antenna Analysis Software for Windows”.

⁴ <https://www.dropbox.com>

The CD version doesn't require "Dropbox" so one does not have to worry about moving the software to the user's computer.

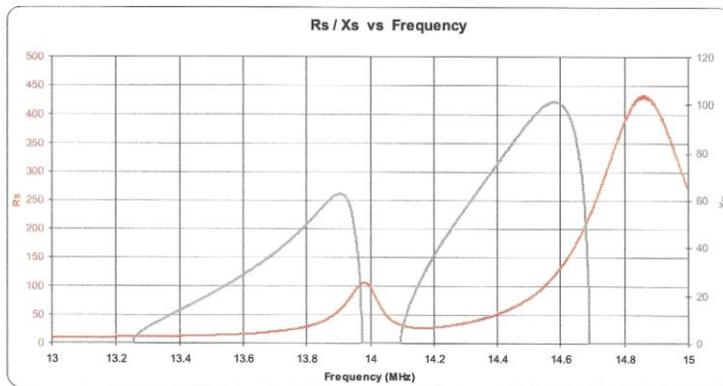
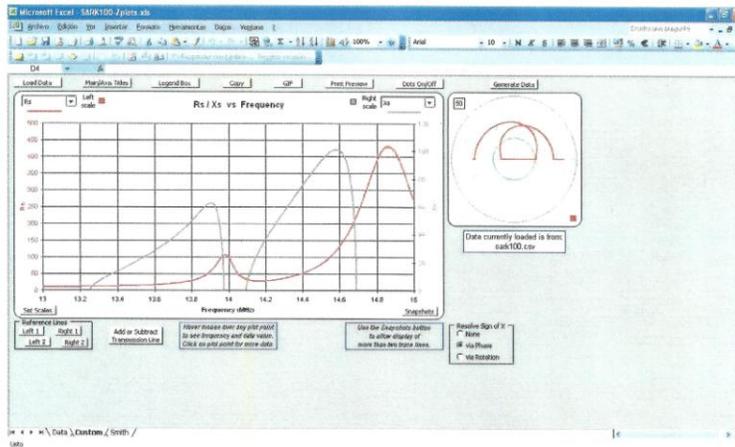
The new software communicates with a SARK 100, Mini60 or MR100 Antenna Analyzer via USB or Bluetooth and plots the analyzer provided VSWR, Resistance, Reactance, Impedance and Return Loss (calculated from analyzer data) vs. Frequency.

A user can select standard amateur bands 160 Meters through 6 Meters, 1-60 MHz with either a user-selected range or a single frequency analysis (one sweep or continuous sweep).

His software provides automatic Excel compatible file writing including one for ZPlots (by hitting "Control-V" they are saved band by band in the application installation folder and should be renamed if you wish to keep them). The analysis data is also saved in the clipboard (both numerical and graphic).

By opening a program like Microsoft Word or Excel for example, one can paste the data contained in the clipboard...if one does so via "Paste Special" and selects a graphic format, it will paste the chart graphic. Then it can easily be included in another application or printed.

(Continued on next page)



I still record the SWR of my antennas, but now am able to effortlessly put into an Excel spreadsheet, not only the SWR, but also Resistance, Reactance, Impedance and Return Loss. Good information to have for pinpointing and solving a possible antenna problem and for gauging antenna efficiency.

The only idiosyncrasy I have noticed besides the driver installation is that the Program Shortcut on the Desktop must be modified to open the correct Com Port. Otherwise the Com Port setting must be reset each time the program is opened. It defaults to Com 2 while my computer has assigned Com 5. Instructions for the mod are provided. A feature I would like to see added would be the ability to directly print the generated graph from the screen without going through the process of using Excel.

With this improved software, the Mini60 becomes one of the more versatile antenna analyzers on the market. The price point of a Mini60 is very competitive to a used MFJ-259B analyzer and when compared to other computer-enabled units sold by competitors that are marketed in the \$300 to \$1000 range, it is an outstanding bargain.

Your signal is only as good as your antenna.

**73's and Good DX **

Antenna Lightning and Surge Protection

By David - K3DAV (5/18/2013)

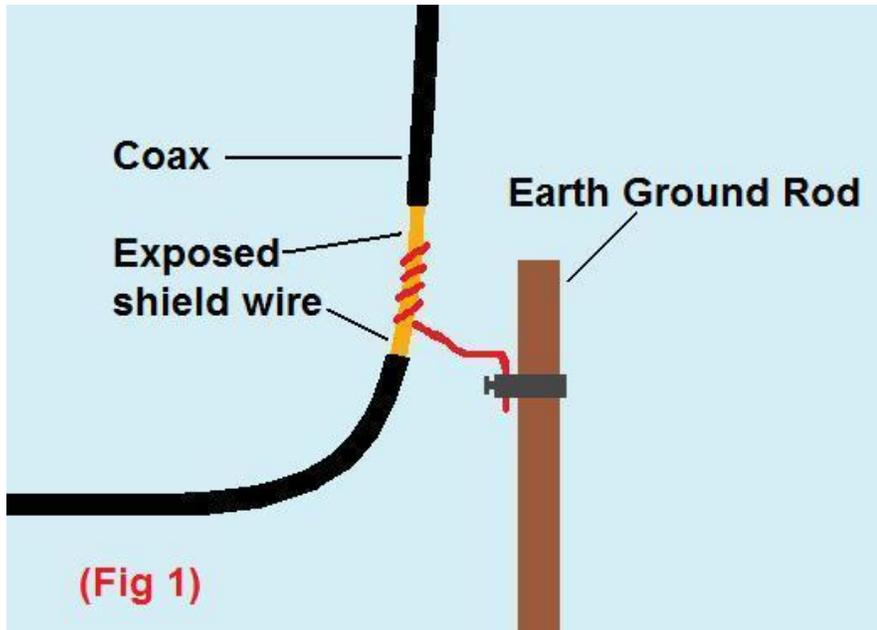
There have been hundreds of discussions on how to protect your radio equipment from lightning strikes. They all talk about grounding your antenna, and grounding your radio equipment. They suggest dozens of lightning and surge protectors for the antenna coax line. Here are a few examples of consumer lightning protection devices. There are several more brands and names of these devices. I did not chose these particular brands or names for any specific reason. I just wanted to show an example of what these devices look like. But all lightning and surge protectors under any brand name will perform no differently than those pictured here.



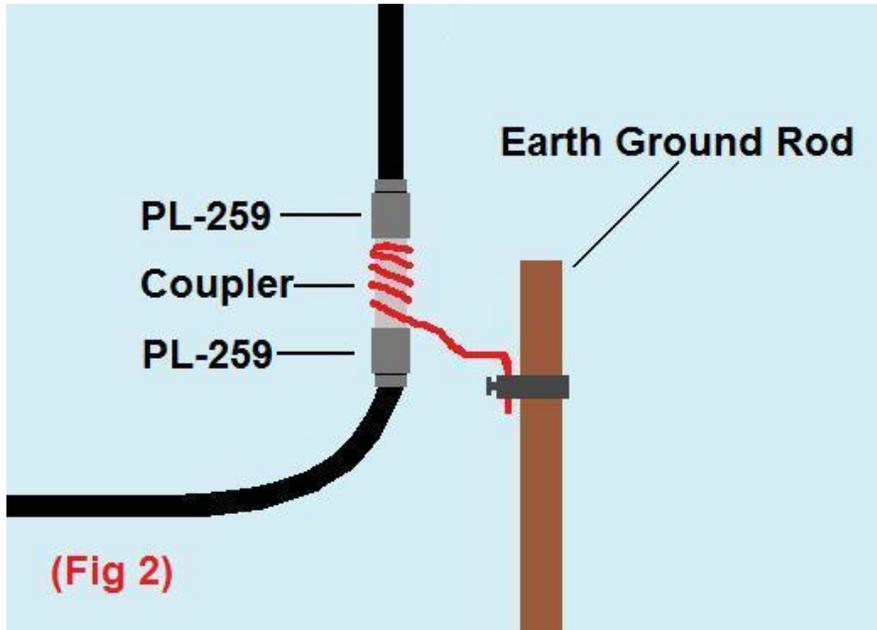
These devices can cost between \$19.95 and \$100.00 and **NOT ONE OF THEM WILL PROTECT YOU AGAINST LIGHTNING**. They are basically nothing more than grounding connectors. There is nothing inside these devices that will stop lightning or even just static from a nearby hit, from getting to your radio. The purchase of any of these devices is like throwing your money into the trash can.

DO NOT buy one of these products thinking that it will protect your expensive radio equipment from lightning or near miss lightning hits. They will not protect your equipment. Some of these devices have a gas filled pellet that is supposed to absorb the static electricity. Sorry but they can not stop lightning. They do not work.

Don't misunderstand my intentions with my uncomplimentary words about Lightning protectors. I am not saying they are bad products. I am just saying that they will not protect your equipment from lightning, as they have no internal circuitry that can prevent lightning form getting to your radio. But they work great as a connector point for grounding your antenna coax. Grounding your antenna is a good thing and should be done by all radio operators. But you could save a lot of money by grounding your system using simpler means.



(As in Fig 1 at left)--> If you stripped a couple of inches of the black jacket from your coax, wrapped a copper wire around the exposed copper shield, then connected the wire to a ground rod in the earth, you would have the exact same protection as any of the above pictured consumer devices can do, and the cost is zero \$\$\$\$. Just remember use a couple of small hose clamps on the wire around the exposed shield for a more solid connection, and use silicone gel to seal the exposed shield area well against weather or water getting into the coax.



(As in Fig 2 at left)--> Or, you could cut your coax, put PL-259 connectors on the 2 cut ends, then connected them together with a UHF female to female coupler, you would have the same thing as pictured above. A ground wire could be wrapped around the coupler and grounded to a earth ground rod. Again, the exact same thing at the cost of 2 PL-259's and a barrel coupler.

Every lightning arrestor or surge protector is designed to be a good and convenient way to ground your coax. And as I said before, this is a good thing. If you buy a lightning or surge protector for the only purpose of grounding the antenna and coax to an earth ground, then any of these devices will do the job very nicely and equally no matter what they cost. But if you are buying the device to prevent lightning from hurting your radio equipment, then you are wasting your money on a complete myth that has no basis in fact. I will tell you the only sure-fire way to prevent lightning from hitting your radio equipment in a few minutes. But first.....

About Lightning

This is a good time to discuss what is lightning, and how dangerous it really is. Lightning is the electricity that is generated in the Earth and in the clouds. It is always there during storms or when the conditions are favorable for electrical storms. It seeks a path and the right atmospheric weather conditions to complete its circuit.

LIGHTNING GOES BOTH WAYS

It is important to remember that lightning works in 2 different directions. Lightning can be generated when warm and cold moisture in the clouds come in contact and create friction. This becomes electricity that seeks the opposite electrical pole which is the earth.

Then we have the lightning that begins at the earth and travels upwards towards ITS opposite pole which are the electrical charges in the sky. But this type usually only comes from tall objects on the ground like trees, tall buildings and towers up in the air, and yes your big antenna sticking way up above everything else.

But all lightning needs an electrical path such as any type of electrical conductor. A metal rain spout that rests on the ground, an antenna tower mounted in the ground, a metal fence post, even a tree can be a conductor because of its water content. A human is 98% water and is a great conductor of lightning. Anything that is made of metal or water can conduct lightning. How many times do telephone poles get hit by lightning? It's because of the big ground wire the runs from the wires down the pole to the ground?

LIGHTNING = UNMEASUREABLE DESTRUCTIVE POWER

Lightning has an awesome tremendous amount of power. Lightning gains 25,000 volts for every one inch that it travels. By the time lightning gets from the ground just to the top of your antenna, it is already into the millions of volts of raw uncontrolled power. Then think about how much more power it gains as it travels another mile or two to the clouds. We are looking at trillions of volts. One big lightning bolt has enough energy to power 10 cities the size of New York City. At 25,000 volts per inch, do you really think a lightning arrestor will stop it from getting to your radio? NO IT CAN'T and it won't. At 25,000 volts per inch, do you really think that kind of power can not jump across a gas filled pellet? YES IT CAN, and it will.

What Does Grounding Do?

Here is a real surprise to most people. When you ground your antenna, the antenna becomes a lightning rod that actually attracts lightning. An antenna that is NOT grounded is far less likely to be hit by lightning. Many farms in open flat areas, and tall city buildings have lightning rods on their roofs. It is nothing but a metal rod sticking up in the air. A heavy wire is attached to the rod, and goes down to the earth ground. The point behind this is to give the lightning a good solid path to the sky or ground so that the rest of the building and property does not become the target of a lightning hit.

Grounding your antenna does exactly the same thing. The metal antenna is sticking up in the air, and the shield side of your coax connects to the antenna, and runs into your home to the radio. If you put a ground connection outside in the coax line to an earth ground, you have turned your antenna into a lightning rod.

There is just one drawback to this type of grounding. The grounding only connects to the shield side of the coax. For obvious reasons, you can't ground the center conductor of the coax. Now think about this. The shield of the coax only connects to the ground of your antenna. This includes the shield side of the coax feedpoint on the antenna, and the entire metal area of the antenna mounting bracket. But the center conductor is a direct line from the big tall main element of the antenna to your radio's internal circuitry. In DC grounded antennas, the main element and coax center conductor are connected to ground through the load matching coil, but it has resistance that still allows super high electrical current from lightning to travel down the center conductor of the coax, and right into your house. No part of the center conductor is actually protected from a direct or nearby lightning hit.

Why Should You Ground The Antenna?

The whole reason to ground your antenna is to direct most electrical static in the air around the antenna, to ground. This helps reduce or even stop some static noise when high static electricity from favorable storm conditions, are around your area. Grounding can also help prevent RF feedback from getting into the radio by sending most of the static to ground. It doesn't actually stop the static, it mostly neutralizes it.

Grounding your radio and your antenna separately is actually redundant. If the coax is earth grounded, then the antenna and radio are both grounded through the coax shield to earth. Adding another ground to the radio does not make any difference if the coax is already grounded. Running a ground wire from your radio to the earth ground outside, and running your coax from the radio to an earth ground outside, are both one and the same. If your coax is grounded and connected to the antenna and radio, then the antenna and radio are grounded too. That is just simple common sense. In fact, the shield of the coax is a far better ground wire than running a separate 16 gauge copper wire to ground from the radio. If your coax is earth grounded and the radio still has a poor ground, then you have a problem with your coax or the connector at the radio end, or the ground connection outside.

So How Can You Prevent Lightning From Hitting Your Radio?

OK boys and girls, here it is. The big secret to prevent lightning from hitting your radio. The only sure-fire way known to all of mankind. And it absolutely positively works 100% of the time. Are you ready????? Don't be shocked!!

DISCONNECT ALL OF THE ANTENNAS FROM THE RADIO AT

ALL TIMES WHEN THE RADIO IS NOT IN USE

OR IS TURNED OFF.

No connection of the big lightning rod on the roof to the big expensive radio, means no lightning can hit the big expensive radio. You don't have to be a genius to understand this simple and easy concept. And if lightning DOES hit the antenna, it goes from the ground straight up through the antenna into the air as a big bright white streak in the sky. It very well may smoke the old antenna and even the coax. But that big overpriced expensive radio will still work like new when you get a new antenna and coax installed. What would you rather lose? A \$200 antenna, or your nice \$2,000 radio? DUH!

But there is something else you need to do with that open ended coax in the radio room. Just disconnecting the coax will save the radio, but lightning can still arc off the connector to anything close to it like your computer, TV or even YOU. Some people have said to put the open coax end into a glass jar. The only problem with this is that the lightning has enough power to melt and spray hot glass all over the room and everyone in it. So the glass jar idea is pretty stupid.

But there is a good cure for this little problem too. It involves running a separate coax line from the radio room to the outside of the home using the shortest route possible. This separate piece of coax should be heavy like RG-8 or LMR-400 or any good double shielded coax. The end inside the house should have a typical PL-259 on it with a double female barrel coupler on it tightly. The other end of the coax should connect to absolutely nothing outside the house. Yes I said to absolutely nothing. DO NOT GROUND IT! Do not connect it to anything. Strip back a couple of inches of the shield and cut it off so it can not touch the center conductor at all. When you disconnect the antenna from the radio, connect the coax to the coax going outside. If lightning hits the antenna, the current should follow the entire length of the coax which comes into your home and continues back outside into thin air. Remember, lightning always follows the electrical path. When the electrical path ends, so does the lightning.

Another trick is if you have 2 antennas, disconnect them from the radio and connect the 2 antennas together with a barrel coupler. If lightning hits one antenna, the current follows the coax path back out to the other antenna. You can also build a metal box with as many SO-239 connectors as you have antennas with one extra. You can connect all of your antennas to this box and have an additional coax line that goes outside the home into the open air. The whole idea is to keep the lightning from staying inside the house. These ideas keep the lightning outside where it belongs.

Look guys, this is not rocket science, but it is a matter of simple common sense. Firstly, lightning and surge protectors do not work. They are a gimmick to make money for a device that is just a coax grounding access connector.

Secondly, grounding the antennas is a good thing to do. Every antenna should be grounded. By all means use a lightning protector if it makes the job easier for you. A ground is a ground no matter how you make the connection.

And last but most importantly, to keep lightning from hitting your radio, you only need to disconnect the antennas from the radio, and feed them to the great outdoors. This is not a big job and only takes a couple of minutes of your big busy day. It should be a common practice of every radio operator whenever the radio is not in use or turned off. I remember a guy who used to disconnect the antenna and throw the coax out the window during storms. Connecting one antenna to another, or to a box with coax that goes outside to nothing, is the same thing as throwing the antenna coax out a window.

I know it all sounds like overkill to do all of the extra work of disconnecting and running wires outside. But would you rather have your \$1,000 to \$12,000 radio destroyed when it could have been easily saved? It's your radio and your money. But safety of life and property has no price tag.

If you have any questions or comments about this article, please feel free to contact me anytime at k3dav@msn.com

© k3dav.com



Wish everybody followed it.

Make your own QSL Cards - <http://www.radioqth.net/qslicards>

NORTHWEST INDIANA DX CLUB

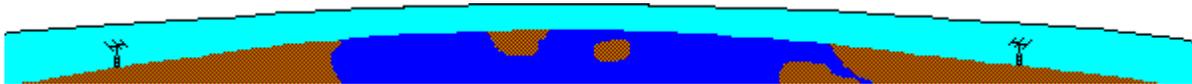


Radio	Confirming QSO				PSE QSL <input type="checkbox"/> TNX QSL <input type="checkbox"/>		
	DAY	MONTH	YEAR	UTC	RST	MHz	MODE

www.cheapqsls.com

I want to thank those that have been sending in articles for the newsletter. All items are appreciated.

Don't forget to send in any information you would like to share with the Club members.



Until Next Time,

73

John

W3ML

<http://nwidclub.weebly.com/>

