JUNE 2015 Newsletter

CCARA Meetings

We meet on the 1st Tuesday of each month at 7:00 PM
Coshocton County Services Building
724 South 7th Street
Coshocton, Ohio 43812
(Basement Level)

EVERYONE IS WELCOME!

If you have program ideas; email or call one of the officers.

June 2nd is the date for our next club meeting. We will meet at the County Services Building on 7th street at 7PM.

Chad, AB8SV and Charlie, KB8PXM will be presenting a program on Broadband Hamnet™. This is a new concept of digital communications using wifi frequencies that are shared with the Amateur Radio service. We are hoping to set up a "Mesh" network in Coshocton city and perhaps, in the surrounding area of the county.

Club News - FROM WWW.W8CCA.ORG *log on today*

ARES Repeater to have New Subaudible tone Requirement

The ARES repeater on 145.230MHz is expected to be operating with a new Yaesu DR System Fusion repeater unit by August 28th. This new repeater will have the capability of accepting a new digital voice format called C4FM. Standard FM signals will also be repeated as we have done in the past. In order to set up this new equipment with the ARCOM controller that we have, it will become necessary to install a sub audible tone access signal.

What this means to the users of the "230" machine will be that each transceiver will need to transmit a continuous tone of 71.9Hz. This is the same tone that is currently required by several other repeaters in the area.

So, everyone start looking up the instructions for your rigs to add this tone whenever you access the ARES repeater after the 28th. Usually, it is easy to set up this tone and save it with your frequency in the memory of your handheld or mobile radio.

Field Day is June 27-28

We will be making final plans for our club's field day operations at the Brown Farm. This is the same location that we have used for the last few years. It seems to be the ideal location in Coshocton County for our purposes.

Come on out to the field day activities. We will again be setting up antennas on Friday afternoon June 26. We can use all the hands available to make quick work of it.

On Saturday, we will be having a cook out around noon to kick things off. Then, at 2PM the actual field day starts. We plan to have a voice station, a CW station, and a digital station set up again. We hope to have enough folks out to operate, to keep the stations going through the night. Please consider signing up for some hours during the event.

2015 CLUB OFFICERS

PRESIDENT: Mike Casey – NF8U
VICE PRESIDENT: Jamie Hoy – KC8YXY
SECRETARY: Will Parks – KC8PUW
TREASURER: Tom Cordes – KB8HEA

CCARA WEB SITE

Go To: **www.w8cca.org**
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Club News Links
Learn More Nets & Repeaters
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COSHOCTON COUNTY EC:

Steve Wheatcraft - AA8BN
COSHOCTON COUNTY AECs:
Dan Hardy - N8VV
Randy Fisher - KL7RF
Tom Cordes - KB8HEA

COARVET MANAGER

Steve Wheatcraft - AA8BN

NEWSLETTER

Ron Carns-N8KRR
n8krr@arrl.net
> > > For prior newsletters – www.w8cca.org

COSHOCTON COUNTY AREA NETS

Net - Frequency - Day – Time

Digital (fldigi) 2M 145.230(-)(w/440 link)
Wednesdays 2000 local (8PM)
CCARA 2M 147.045(+)
Sundays 2100 local (9PM)
ARES 2M 145.230(-)
Mondays 2100 local (9PM)
NECCo 440* 440 443.5375(+)
Mondays After ARES Net

Johnny Appleseed 10M USB 28.450
Fridays 2100 local (9PM)
* = *North East Coshocton County 440 Net*

REPEATER Trustees

Club Repeater - KL7RF
ARES Repeater – KE8XM
440 Repeater – KB9JSC

CLUB Trustees

AA8UA – Colleen
KC8ZWR – Mike
N8KRR – Ron

MEETING ATTENDANCE

2015 Mar	2015 Apr	2015 May
KB8HEA	KB8HEA	KC8WX
NF8U	AA8BN	KC8PUW
KB8PXM	WN8RGW	NF8U
N8RQ	NF8U	KB8HEA
N8VV	N8VV	WB8SJQ
KC8ZWR	KC8ZWR	N8KRR
WB8SJQ	KC8YXY	N2AFV
KD8YTN	KL7RF	KC8YXY
AA8BN	KB8CRC	KC8ZWR
KE8XM	KD8YTN	KB9JSC
		N8VV
		KD8YTN
		AA8BN
		AB8SV
		KL7RF

™

ARRL Announces Free Exam Review Website

The ARRL has launched a new online resource that allows users to take randomly generated practice exams using questions from the actual examination question pool.

ARRL Exam Review for Ham Radio™ is *free*, and users do *not* need to be ARRL members. The only requirement is that users must first set up a site login (this is a different and separate login from your ARRL website user registration).
http://arrlexamreview.appspot.com/
73 Dan N8VV@arrl.net

View current Coshocton exam sessions opportunities at: http://www.w8cca.org or visit www.arrl.org/arrlvec/examsearch.phtml or www.wcnet.org/~johnson/exams.txt

ARRL AMATEUR RADIO EXAM SESSIONS 2015

Conducted by the Coshocton Ohio Amateur Radio Volunteer Examiner Team, sponsored by the Coshocton County Amateur Radio Association, W8CCA
Walk-in and pre registered sessions are available throughout the year.
Contact us for other dates and times to set up a session for you! All Exam elements available: The 2014 exam fee is $15.00. Exact amount appreciated. Checks made out to ARRL/VEC are accepted too. A 2nd version of exam is available at VE discretion, time permitting. An additional $15 is needed.
REQUIRED: > PHOTO ID (driver's license, passport) or, when no photo ID is available, two forms of identification must be presented (birth certificate, report card, library card, Social Security card, utility bill, bank statement, Non-photo ID/driver's license, etc). Students may bring a school ID card, minors work permit, school report card, library card and/or a written note from a legal guardian. If you don't have ID, then no exam will be administered.
>CURRENT ORIGINAL AMATEUR RADIO LICENSE and COPY, and ORIGINAL valid CSCE(s). If applicable, bring the original and a photocopy of your current Amateur Radio license and any Certificates of Successful Completion of Examination (CSCE) you may hold from previous exam sessions. The photocopy(s) will not be returned. If you already have a license, then you need your FRN number on the 605 application.
>Social Security number or FCC issued FRN Already licensed, then you need the FRN number. (The FRN is viewable by doing a search for LICENSE at the FCC WTB ULS web page:
http://www.fcc.gov/wtb/uls
Bring your Social Security Number (SSN) or your FCC issued FRN, if Federal Registration Number (FRN). VEC's are required by FCC to submit either your SSN or your FRN number with your license application form. If you prefer not to give your SSN, then you may use your FCC issued you have one. For instructions on how to register your SSN with the FCC and receive a FRN, visit the ARRL web page:
http://www.arrl.org/fcc/uls101.html.
>Bring cash, exact amount appreciated, check or money order to cover the exam session fee.
We have NCVEC 605 forms at session; Handicap Accessible; Copy machine is available.
Contact Person Colleen, AA8UA 740-622-5761
Email to: AA8UA@arrl.net

AA8BN, Session Mgr

™

JOIN IN THE FUN

Talk around the world (with no phone or infrastructure)

Help your community during severe weather & other disasters

Experiment with electronics and radio frequency devices

Build and operate remote control robots or vehicles with long range RC frequencies

Meet new friends from around the world

Learn to operate communications devices with only power from sunlight.

These are some of the many marvelous and exciting things that hams in your local area are doing today.

To find out a little bit more about ham radio, click on this link, which will take you to the ARRL website to find out What is Ham Radio?

The American Radio Relay League is the foremost proponent of Amateur radio in the United States and they have a wealth of information to help you explore ham radio.

In Coshocton County there are many hams that are willing to assist you to become a ham radio operator. We conduct free classes and make available local testing facilities so that you have the opportunity to take part in this exciting and rewarding hobby.

HAM RADIO IN COSHOCTON COUNTY

To find out more about local classes and how to proceed, give Randy (callsign: KL7RF), a call at: 740-545-7036, or send an email to him at: KL7RF@arrl.net We'll be happy to get you started, get a class together for you, and mentor your progress while you learn about this hobby. Ham Radio is lots of fun, and is considered a "last resort" communication asset in times of natural or other disasters in our community and in our country. You are also welcome to come to one of our meetings to meet us and see what is happening. You can find out information on our meeting nights Here.

SKYWARN

Remember the Penny
Criteria from NWS Pittsburgh;
SKYWARN spotters only need to report hail size of 3/4 inch, penny size or larger.

SKYWARN nets are held on the 145.230MHz (ARES) repeater whenever severe weather conditions threaten Coshocton County. There are several PDF files available below that you can download to help you be better prepared to assist the National Weather Service and Coshocton County as an amateur radio **SKYWARN** spotter. We encourage all ham weather spotters to join the net. You are the eyes and ears "on the ground" in Coshocton, for the weather service.

Warning Siren Testing

The seven (7) Coshocton County Outdoor Warning Sirens and EAS are tested every first Wednesday of each Month at 10:00 a.m. The seven (7) sirens are located at Conesville Fire Department, Coshocton City Fire Department, Canal Lewisville, Pleasant Valley, West Lafayette Fire Department, Bakersville Fire Department, and Warsaw Fire Department. The sirens are tested to raise public awareness and for maintenance.

NVIS Antenna Day: April 25

We had a great time, but a very coooold time testing antennas for NVIS. We found a very good antenna constructed by Mike NF8U which yielded 77 contacts around the state and into neighboring states. Thanks to all who participated, and made it a successful outing.

NVIS: Near Vertical Incidence Skywave
What are the advantages and disadvantages of NVIS?
What kind of antenna works well for NVIS?
How do I select a frequency for NVIS operation?

What is NVIS?

NVIS, or Near Vertical Incidence Skywave, refers to a radio propagation mode which involves the use of antennas with a very high radiation angle, approaching or reaching 90 degrees (straight up), along with selection of an appropriate frequency below the critical frequency, to establish reliable communications over a radius of 0200 miles or so, give or take 100 miles. Although not all radio amateurs have heard the term NVIS, many have used that mode when making nearby contacts on 160 meters or 80 meters at night, or 80 meters or 40 meters during the day. They may have thought of these nearby contacts as necessarily involving the use of groundwave propagation, but many such contacts involve no groundwave signal at all, or, if the groundwave signal is involved, it may hinder, instead of help.

Deliberate exploitation of NVIS is best achieved using antenna installations which achieve some balance between minimizing groundwave (low takeoff angle) radiation, and maximizing near vertical incidence skywave (very high takeoff angle) radiation.

As hams, we often faithfully follow the advice: get your antenna up as high as you can get it! We do this, and other things (like choosing antennas that have a low angle of radiation) in order to maximize the distance over which we can communicate. An antenna with a particularly high angle of radiation is often somewhat disparagingly referred to as a "cloudwarmer", the implication being that if the signal isn't radiated at a low enough angle, it's being wasted. For NVIS, we ignore all this traditional advice, and select instead techniques which will maximize not our DX, but our ability to reliably communicate with other stations within a radius of 0300 miles. Not just any old frequency will work for NVIS. Successful NVIS work depends on being able to select, or find (through trial and error), a frequency which will be reflected from the ionosphere even when the angle of radiation is nearly vertical. These frequencies usually are in the range of 210 MHz, though sometimes the limit is higher. The trick is to select a frequency, which is below the current critical frequency (the highest frequency which the F layer will reflect at a maximum 90 degree angle of incidence) but

not so far below the critical frequency that the D and/or E layers mess things up too much.

Note: If you're already familiar with the ionosphere's role in HF radio communications, you may want to skip to the explanation of what's special about NVIS.

There are two main types of propagation at HF, known as "ground wave" and "skywave". Ground wave propagation occurs when the receiving station is sufficiently close to the transmitting station, and is able to receive the portion of the transmitting station's signal, which clings to the ground. The range of ground wave propagation varies with the type of antenna at the transmitting station, the characteristics of the ground between the transmitting station and the receiving station, and other factors. It can be anywhere from a few miles, to a few dozen miles.

Distances beyond the range of the groundwave signal are covered by skywaves. Skywaves are the waves which radiate upward at some angle from the antenna, and (we hope) are reflected from the ionosphere, to return to earth further away.

The ionosphere is a high altitude region of the Earth's atmosphere which is composed of gaseous atoms which have broken into ions. The sun is the source of the ionizing energy, so the condition of the ionosphere varies with time of day, season of the year, the 11-year sunspot cycle, and the 27day rotation of the sun. The layers of the atmosphere that effect radio propagation are the D, E, and F layers.

I won't go into much detail in outlining their roles. If you're interested in this topic, entire books have been devoted to it. In a nutshell, it's the F layer which is usually involved in reflecting our signals back to earth, while the D layer absorbs our signals. The Elayer can either help, or hinder.

Long distance propagation of radio waves is usually achieved by their being reflected from the ionosphere, and returning to earth some distance away from their point or origin. (Follow along with the diagram if you wish.) Radio waves which have been radiated at a very low angle of radiation travel a long way before finally making it up to the ionosphere, strike the ionosphere at a very shallow angle (A) and return to earth far away from their point of origin(A'). As the angle of radiation goes up, the radio waves strike the atmosphere at a more moderate angle (B), and return to earth closer to their point of origin (B'). For any given frequency and current state of the ionosphere, there may be some maximum angle of incidence at which the ionosphere will reflect signals back to earth. Signals which strike the ionosphere at a higher angle of incidence than the current maximum will not be reflected at all, but will continue on out into space, instead (C). The area of the earth to which the reflection would have occurred will be in what we call the "skip zone" (unless it's close enough to the signal source to receive the groundwave signal). The skip zone is the region consisting of areas of the earth's surface which are outside the radius the transmitting station's groundwave will reach, and yet not far enough away to receive reflections of skywaves.

NVIS techniques concentrate on the areas, which are often in the skip zone. The idea is to radiate a signal at a frequency, which is below the critical frequency, at a nearly vertical angle, and have that signal reflected from the ionosphere at a very high angle of incidence, returning to the earth at a relatively nearby location. (See illustration.) Of course, no antenna radiates all its signal at exactly one angle, so the best we can get is a range of angles, ranging from perfectly vertical, to nearly vertical. The portion of the signal which is radiated at a vertical, or nearly vertical, angle reflects back to earth over some radius, which is determined by the lowest angle at which the antenna radiates much signal. Absorption by the D layer, and other factors, determine some minimum frequency below which the signal will no longer be usable, and usually some distance beyond which signals will no longer be usable.

For areas which are within the groundwave range of the transmitting station, the groundwave's presence may interfere with the reflecting skywave. It may very well help, too. It all depends on whether the groundwave and the skywave arrive in phase, out of phase, or somewhere in between, and their relative strengths. If the groundwave arrives at about the same strength as the skywave, and the two are out of phase, the signal will disappear. Since the height of the ionosphere varies with time, phase alignment may in drift from phase, to out of phase, resulting in signal fading. For this reason, it's best to minimize groundwave radiation when using NVIS techniques, so that it will be less likely to interfere with the Skywave.

Although this discussion has focussed mainly on the transmission of signals, there is a corresponding advantage of using NVIS techniques in reception, and a trick or two that are useful mainly for reception.

The corresponding advantage is that if your antenna favors high angles for transmission, it will also favor high angles for reception. An antenna optimized for radiating at the high angles used for NVIS will also be optimized for receiving the skywaves, which will be arriving at a high angle from the ionosphere. An antenna which does not radiate much groundwave signal will also probably not receive groundwave signals as strongly. When both stations are using antennas, which are optimized for NVIS, the mode is favored both in transmission and reception, and those advantages add together, increasing the chances of reliable communication.

There is also an advantage inherent in the use of NVIS style antennas, which applies only to receiving. The frequencies, which are useful for NVIS (usually 210 MHz), are the same frequencies, which are most susceptible to atmospheric noise. A major source of atmospheric noise is distant thunderstorms. Nearby thunderstorms are the worst, of course, but the noise from all possible sources adds together. Unless there is a nearby thunderstorm, most noise will be the sum of

the noise from distant sources, which are all, propagated to the receiving antenna. Since an antenna optimized for NVIS is listening mostly to signals propagated from relatively nearby areas, and does not favor the reception of signals, static crashes, and other sources of noise and interference from more distant sources, it will not hear as much noise or interference as an antenna optimized for DX operation. The result is a better signal/noise ratio.

Often, taking measures, which optimize a station's NVIS, capabilities will drop the noise level substantially. Sometimes, the drop in noise can be maximized at the expense of some signal strength, and result in a communication circuit which has lower signal levels, but even more dramatically lower noise levels, for an even better signal/noise ratio than could be achieved by focusing only on maximizing signal levels.

So, selecting a frequency below the critical frequency, but not too far below it, and selecting an antenna which will radiate skywaves at a high angle, and minimize groundwaves and the reception of noise, are the essential tricks of establishing reliable communication in the 0200 mile radius which is so often a challenge for HF operation. What are the advantages and disadvantages of NVIS?

Among the many advantages of NVIS are: NVIS covers the area which is normally in the skip zone, that is, which is normally too far away to receive groundwave signals, but not yet far enough away to receive skywaves reflected from the ionosphere. NVIS requires no infrastructure such as repeaters or satellites. Two stations employing NVIS techniques can establish reliable communications without the support of any third party.

Pure NVIS propagation is relatively free from fading. Antennas optimized for NVIS are usually low. Simple dipoles work very well. A good NVIS antenna can be erected easily, in a short amount of time, by a small team (or just one person). Low areas and valleys are no problem for NVIS propagation.

The path to and from the ionosphere is short and direct, resulting in lower path losses due to factors such as absorption by the D layer. NVIS techniques can dramatically reduce noise and interference, resulting in an improved signal/noise ratio. With its improved signal/noise ratio and low path loss, NVIS works well with low power.

Disadvantages of NVIS operation include:

For best results, both stations should be optimized for NVIS operation. If one station's antenna emphasizes groundwave propagation, while another's emphasizes NVIS propagation, the results may be poor. Some stations do have antennas, which are good for NVIS (such as relatively low dipoles) but many do not. NVIS doesn't work on all HF frequencies. Care must be exercised to pick an appropriate frequency, and the frequencies which are best for NVIS are the frequencies where atmospheric noise is a problem, antenna lengths are long, and bandwidths are relatively small for digital transmissions.

Due to differences between daytime and nighttime propagation, a minimum of two different frequencies must be used to ensure reliable around the clock communications.

What kind of antenna works well for NVIS?

Dipole

Once again, the dependable dipole antenna proves itself useful. One of the most effective antennas for NVIS is a dipole positioned from .1 to .25 wavelengths (or lower) above ground. When a dipole is brought very close two ground some interesting things happen. The most interesting thing, from an NVIS perspective, is that the angle of radiation goes up. In the range of .1 to .25 wavelengths above ground, vertical and nearly vertical radiation reaches a maximum, at the expense of lower angle radiation (which we'd like to minimize, anyway, for NVIS). A dipole can be used at even lower heights, resulting in some loss of vertical gain, but often, a more substantial reduction in noise and interference from distant regions. Heights of 5 to 10 feet above ground are not unusual for NVIS setups, and some people use dipoles as low as two feet high with good results (relatively weak signals, but a very low noise floor).

Another interesting thing that happens with very low dipoles is that their feedpoint impedance goes down. An acceptable SWR with 50-ohm coax is likely. Plan to bring your tuner along just in case, but you may get by just fine without it. Yet another fortunate thing about low dipoles is that they are easily erected. Finding a tree, which will serve as a support is often easy, and it's not hard to get a line in a branch, which will suffice. Masts made of PVC tubing are practical at these heights. Very low dipoles can be supported by traffic cones with a notch cut in the top, or a simple tripod made from short sections of PVC pipe or wooden dowels, and bungee cords.

With the exception of the very lowest dipoles, most dipoles will gain an extra 2 dB or so of vertical gain if you allow the center to droop a few feet. Allowing the center to droop means that the end supports don't have to be as sturdy, which makes installing a good NVIS dipole that much easier.

Inverted Vee

The dipole's close cousin, the inverted vee, is another good NVIS antenna, which can be even simpler to support. An inverted vee will work almost as well as a dipole suspended from a slightly lower height than the apex of the inverted vee, so long as the apex angle is kept gentle about 120 degrees or greater. An inverted vee is often easier to erect than a dipole, since it requires only one support above ground level, in the center.

Counterpoises

The high angle radiation of a dipole (or inverted vee) can be enhanced by adding a counterpoise wire below

it, about 5% longer than the main radiating element, to act as a reflector. The optimum height for such a counterpoise is about .15 wavelengths below the main radiating element, but when the antenna is too low to allow for that, a counterpoise laid on the ground below the antenna is still effective.

A knife switch at the center point of the counterpoise can be used to effectively eliminate the counterpoise from the antenna system. This technique is useful for using a dipole for NVIS and longer distances, too. A counterpoise is installed at ground level, or as high as the switch can easily be reached, and a dipole is mounted .15 wavelengths above the counterpoise. When the switch is closed, the vertical gain will increase, and the noise levels will drop. When the switch is open, lower angle gain will increase, improving the antenna's performance for non-NVIS use.

How do I select a frequency for NVIS operation?

The selection of a optimum frequency for NVIS operation depends upon many variables. Among the many variables are time of day, time of year, sunspot activity, type of antenna used, atmospheric noise, and atmospheric absorption. To select a frequency to try, one may use recent experience on the air, trial and error (with some sort of coordination scheme agreed upon in advance), propagation prediction software, near realtime propagation charts (available on the Internet) showing current critical frequency, or even just a good educated guess. Whatever the strategy used for frequency selection, it would probably be best to be prepared with some sort of "Plan B" involving communicating through alternate channels, or following some prearranged scheme for trying all available frequency choices in a scheduled pattern of some sort. In this discussion, some of my comments will assume that the reader's choice of frequencies is restricted to the amateur bands, but much of the discussion will be more general.

Our Ohio NVIS antenna day results for April 25,2015. NF8U put together a couple antennas for the event to test. An AS2259 antenna built was Great! It works on 75 and 40. Check it out on the Ohio ARES Web Site. 75 was not open for us so we worked 40. All stations were worked with the W8CCA call sign and most worked with a modified AS2259 antenna which worked better than the 112ft end fed antenna at 10 feet. Most reports sent and received were 5-9 or plus. A very few were 5-7. Randy, KL7RF set up his digital station using Olivia 8-500 contacting W8SGT on 40, 7.072. We used our ARES TS50 rig from SK, KB8KEV. Warren worked 6 stations on 40m ssb in the beginning. AA8BN worked 68 stations on 40m ssb, calling on the frequency of 7235 for 2 1/2 hours. Warren assisted by being logger of 25 of those for me near the end of our operating time.

KC8WX, KD8YTN and KC8YXY were there for tear down of the station and throughout the event. Thanks to KC8YXY for suggesting the site and Coshocton County Amateur Radio Association, W8CCA.

We were listed on the DX cluster which helped get a few different states in the log.

THANKS to all the team mentioned below for setting up the station and operation from W8CCA. A successful day for us and Ohio ARES® with practice in the field some things learned.

Numbers:
W8CCA Team: NF8U, KL7RF, KC8WX, N8VV, KC8YXY, KD8YTN, N8TCC, AA8BN.

8 stations were worked from start at 1430 to 1551 UTC. From 1555 until 1822 UTC, 68 stations were worked.

76 total in the log were worked from W8CCA, with 72 different stations worked.

W8SGT was worked on ssb and digital on 40m. An important communication link for ARES.

1 Canadian station

13 states worked:

NC	IL
WV	MD
MA	NY
PA	VA
MI	TN
KY	NJ
IN	

27 Ohio counties worked:

Franklin	Mahoning
Licking	Montgomery
Delaware	Lorain
Stark	Morrow
Ashtabula	Meigs
Trumbull	Carroll
Knox	Cuyahoga
Lake	Jefferson
Marion	Sandusky
Perry	Clark
Richland	Geauga
Muskingum	Monroe
Hamilton	
Medina	
Green	

Steve, AA8BN Coshocton County ARES EC
Mike, NF8U President,
Coshocton County Amateur Radio Association, W8CCA.

75 MTR NVIS Success!

Warren P. KC8WX

After a major disappointment with the original installation location of the 75 Mtr NVIS Dipole, a relocation of the antenna has produced good results this AM! So as suspected, the cable Internet drop line with all it's leaking Hash and the power drop line were the culprits. I dropped the NVIS antenna this AM and drug it over to center on the tower at 15ft.

Tied the ends off to the same tree and fence pole as the IAC Double Bazooka Inverted Vee.

The results were an immediate major improvement! Now the NVIS 75 is within 1 S Unit and at times equal to the performance of the IAC Vee! Equal to or less Noise on the NVIS.

I was able to check into the OSSBN at 10:45 AM on the NVIS with the NCS in Paulding who was extremely weak today. Signals received from regulars I know were equal switching back and forth between the Vee and NVIS.

SWR readings came out really good and Wide on the trimmed 80 Dipole:

1.5 SWR from 3.825 - 3.858
1.2 SWR from 3.858 - 3.955
1.5 SWR from 3.955 - 4.000

Even though on 40 the SWR is over 3 to 1, the 570-DG Tunes to the NVIS on 40 Mtrs and works fine. Receive there has much lower Background Noise over the Half Sloper IAC Bazooka. I have not had anyone closer contacts than KY or WV to test with on 40 to see the NVIS effect.

Can't wait to try it out in the evening when the Noise levels drop and I can work the evening Nets and test with the 3990 Group at 9 PM! Those stations are all WV and KY so will be good checks with familiar signals at set distances within the NVIS range. **Warren KC8WX**

My Newly Built NVIS Antenna for 40 Mtrs!

Warren Peiter - KC8WX
Monday Apr 27 at 4:24 PM

After our successful NVIS Day, I was so impressed with the NVIS low noise communications on Saturday, that I built a Homebrew 40 Mtr NVIS Dipole today!

Met up with Steve, AA8BN to borrow some Mini 8X and picked up 65 ft of 12g insulated stranded at ACE and (3) 10'x 2" PVC pipe sections. I had some 1.5" PVC at home for the bottom slip-over stakes.

I kept the two end pipes at 10ft. lengths. Then I cut the Middle Support down to 8ft. Had read online that a Dipole dipped lower in the middle does better. Cut the 1.5"x 2' PVC stakes at 45 angles for the dirt end, to get easier driving into the sod. Found my old Alpha Delta-C Center Insulator with Egg end Insulators. I cut the 12g wire to 31'6" per side. The plan was to shoot for around 7.260 Resonance.

I drove the first 2ft PVC stake one foot into sod next to the porch. Tied off the end of the antenna by a short rope, slipped the 10'x 2" PVC over the 1.5" PVC stake.

Next I moved out to the Center Support. Stretched the wire and drove the second 1.5"x 2' PVC stake in. Attached the PL-259 and hung the C-Insulator over the hook on the 2"x 8' PVC. Then slipped the PVC over the stake.

Moved out to the last end, stretched the wire, drove the 1.5" x 2' PVC stake, tied off the wire to the 10ft PVC pole eyelet. Slipped the PVC end support over the stake. Boom! Instant NVIS Dipole for 40 Mtrs!

Now...Would it work?

Connected the 50' mini-8 jumper cable to another 10' jumper using two barrels, just using temporary patched together coax until my 100 footer arrives. I'm sure lots of loss here... Poor man Antenna rig. :) Connected the coax to a line already in the garage that went to an inside antenna, so I could make the connection to the Shack in the basement.

Plugged into Port2 Direct on the AEA Tuner. Punched the AT Tuner on the Kenwood TS-570DG. Amazingly it Tuned!!! Punched the AT Off, lowered the power to 5 Watts, Keyed into the AEA Tuner and manually tuned the Tuner. Minor changes on two knobs from where it runs the Double Bazooka Half Sloper on Port1.

Brought it up to Full 100 Watts and everything was perfect! Flat SWR at 7.260 and well beyond either side! Lowered the Output to 5 Watts again and swept the band looking for center resonance. Well there is no definable Center. Antenna is Flat from 7.250 to 7300. 1.5 SWR from 7.250 down, way down... If I had just six more inches of wire this thing would be Flat from 7100 - 7300 most likely. The antenna is in an area with lots of interacting obstacles, so away from that in the open it may be even better.

As I noticed on Saturday, the Noise Floor is way Down from my Half Sloper. About 2-3 S Units lower. This allows much better reception of signals that are in the noise on the Half Sloper. All depends on how far out they are. Stations at 400 miles the Half Sloper does better except for the Vertical Component Noise.

Under 400 miles, the NVIS is better and quieter.
I tried contacting a weak NCS in Tennessee. I could hear him, but he had high noise levels. Got a Relay from Cincy and he was Booming in at S9 +10! Said I was S9+, so just like on Saturday NVIS Day, In-State signals are Strong; the whole idea of this type of antenna. I do not even have the three 70' Reflector Ground Radials under it yet!

I was so inspired by this homebrew success, first try, 40 Mtr NVIS, that I just ordered an Alpha-Delta DX-80 Dipole Kit from HRO. ($63). The wire alone would cost me $38 at ACE. This includes the same C Insulator, Egg Insulators, Antenna wire and 50ft of rope. Good price for an 80 Dipole kit. I have room to string this at a 45 across the backyard and plan on making it suspended between endpoints for permanent use on OSSBN. Can't wait to get that NVIS wire on the air! It will be here Wednesday! ☺

Warren
KC8WXCoshocton Co. ARES

NVIS related links
KV5R: Understanding NVIS Antenna and Propagation Experimentation foF2 (AKA "Critical frequency") map for

North America (others available) Army Communicator (Page down to NVIS section)

HELP IN PRINTING YOUR AMATEUR LICENSE *from May 18, 2015* Scott *N8SY OHIO SECTION JOURNAL*
I've gotten several phone calls from frustrated hams that are having a hard time finding just where in the vast wasteland of the FCC website you have to go to get an "official" copy of your license. A friend of mine actually wrote to the FCC and got a pretty good description of how you have to navigate around to get to the area where you can get a .PDF copy of your current license to download and print.
http://4.bp.blogspot.com/-w0L6NI0mroE/VTE4eZhWBdI/AAAAAAAABBM/UAsKSHvots0/s1600/FCC_logo.jpghttp://4.bp.blogspot.com/-w0L6NI0mroE/VTE4eZhWBdI/AAAAAAAABBM/UAsKSHvots0/s1600/FCC_logo.jpgHere goes..
Please remember, this comes from the FCC..
PLEASE NOTE: Per Public Notice DA 15-72, The FCC no longer mails license authorizations. If you provide an email address on your application, an official copy of your license will be automatically emailed to you after the application has granted.
Licensees can also opt to download electronic authorizations by logging into License Manager:
Log in to
https://wireless2.fcc.gov/UlsEntry/licManager/login.jsp
with your FCC Registration Number (FRN) and Password (Ed. Note.. This is essential.. You have to have these two items **BEFORE** you begin)
If you do not know the password:
Click on the Contact Tech Support link
Click the Reset Password button and follow the prompts for resetting the password
After receiving confirmation of a successful password reset, click the link for Universal Licensing System (DO NOT click the CORES Public Interface link.)
Click the button labeled ULS License Manager; you will be taken to the log in screen
Click the "Download Electronic Authorizations" link on the navigation bar on the left side of the License Manager home page.
1. To search for the authorization(s) you want to download:
a. Enter the call sign OR
b. Enter a date range (based on Effective Date of the license)
2. In the My Authorization box, select the call signs you wish to download
3. Add the call signs to the Authorizations to Download box.
4. Once the licenses have been selected, click the Download button in the lower right-hand corner of the screen.
5. The download will be automatically converted to a PDF file, and you can choose to Open (to print) or Save (to save to a desired folder)
Downloading Electronic Authorizations Using the Chrome Browser
Filers using Chrome will need to turn off the Pop-up Blocker before downloading. To turn off the Pop-up Blocker:
1. Click on the Settings icon (3 horizontal lines) in the upper right-hand corner of the browser
2. Click on Settings
3. At the bottom of the Settings page, click the link Show Advanced Settings
4. Under the Privacy heading, click the Content Settings button
5. In the Content Settings window, scroll down to the Pop-ups section
6. Click Allow all sites to show pop-ups; click the Done button
7. Close the Settings tab
After the authorization(s) have been selected for download, follow these steps for accessing the PDF file in Chrome:
1. After clicking the Download button, a blank window will open. At this point, the authorizations are downloading. (If the filer exits this window prior to the download finishing, the download will not complete.)
2. Once the download completes, it will appear at the bottom of the blank window.
NOTE: If the download button cannot be seen at the bottom of the screen, maximize the window
3. Click on the button to open the PDF file
Downloading Authorizations Using MAC Operating Systems
The FCC recommends using the Chrome or Firefox browsers for MAC when downloading authorizations using the MAC OS.

PDF ERRORS:
If you receive one of the following error messages after attempting the above steps, you may need to install or update the Adobe Acrobat Reader:
Invalid or corrupted PDF file. Message: Invalid PDF structure go to the following website -
https://get.adobe.com/reader/
1. You may uncheck the optional offer.
2. Click the Install now button.
3. You will be prompted to either save or run the file. (If you are prompted to save the file, you will need to locate your download folder and run the file.)

MOBILE DEVICES:
Mobile devices will need to have a PDF viewer to open the Electronic Authorization. We recommend installing Adobe Acrobat Reader from the app store. Should you have any further questions or need additional information, please submit a request for help at http://esupport.fcc.gov/index.htm, or call the FCC Licensing Support Center at 1-877-480-3201, selecting option 2 after the main menu recording.
Sincerely,
FCC Licensing Support Center

OHIO SINGLE SIDEBAND NET
The OSSBN is a great introduction to the ARRL's National Traffic System. It meets three times a day: 10:30AM, 4:15PM, and currently 6:00PM to handle traffic in, out, and throughout the state of Ohio, and the

rest of the country. Check them out, and listen in on 75 meters on 3.9725MHz. This is a very active net and represents some of the best of amateur radio operating, as well as continuing the fine tradition of providing emergency communications in existence since the inception of ham radio itself. This was the foundation of the formation of the Amateur Radio RELAY League. This is where the "Relay" came from in the name.

Check out the OSSBN website at: Ohio Single Sideband Net
Net on 440.

The KB9JSC repeater will be linked to the 145.230 MHz for the Monday ARES net at 9PM local, so you can check in to the net on either band. The frequency of the UHF repeater is 443.5375+MHz.

Right after the ARES net, the 440 link will be brought down, and there will be a new net run on the 440 repeater alone. The purpose of this net is for folks to set up and test their equipment on the 440 band and get used to operating there. If you have 440 capability, you are welcome to check in to the net. You don't have to be a member of any group to join in.

June 2nd is the date for our next club meeting. We will meet at the County Services Building on 7th street at 7PM.

Chad, AB8SV and Charlie, KB8PXM will be presenting a program on Broadband Hamnet™. This is a new concept of digital communications using wifi frequencies that are shared with the Amateur Radio service. We are hoping to set up a "Mesh" network in Coshocton city and perhaps, in the surrounding area of the county.

Club News – at:
WWW.W8CCA.ORG
+ log on today +