

Solid Copy de KC7Z

Newsletter of the North Kitsap Amateur Radio Club
 PO BOX 2268 -- Silverdale, WA 98383-2268
 Web page: <http://www.nkarc.org>

December 2009

Pres Sez

Well the holiday season is here once again. I would like to wish everyone a happy and safe holiday season. Best wishes from the Club to you and your families. Also, at this time I would like to say thank you to all for the support you gave the Club. I would especially like to say thanks to the Club Officers' and Directors for their support, to me and to the Club. My hopes for the coming year is that each member make a new years resolution to increase their active support of the Club to make it the best year we have ever had as a Club.

73, Al -KE7RPR

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Annual Christmas Dinner:

The NKARC Annual Christmas Party will be on December 17th at the Clearwater Casino Buffet starting at 6:00 PM.. The dinner is open to members and guests. Notify the cashier that you are with the North Kitsap Amateur Radio Club and you will be directed to the club dinner area.

This is a great opportunity to meet club members who cannot come to the meetings because of family or work commitments. Bring a friend who is interested in amateur radio but is reluctant to study the material because he or she is not technically inclined. This will be their opportunity to meet others who are not "technically inclined" but yet are amateur radio operator. If that person is a YL or XYL, there will be others to offer encouragement. As they say in Dixie – "Y all come."

Nomination and election of officers will be conducted during the dinner. Come and help pick your officers for the 2010 year.

There will be no club business meeting on the third Saturday of December.

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Tnx for the support:

.This edition is a few days late than what I had planned and I apologize for that. A close friend of mine passed away just before Thanksgiving and I found myself involved in helping to plan the funeral and a number of other things related to working with his family and the church. Thanks to the club members, my main function for this edition is to edit the material submitted, and arrange it into the newsletter.

Last month, there was an article on emergency power using batteries written by Paul Honore', W6IAM. I felt this could start some of us to consider setting up an emergency power system and work toward an emcomm capability in the shack. This month, the emphasis will be on electrical safety in the shack and protection against lightning damage. Thanks to those who contributed articles and suggestions related to those topics. Along with these article, there are a few related to emergency communications- something we do because we are here.

Look for the trivia question about digital communications. The question was asked of me during a symposium on digital systems I attended in Washington, D.C. Of course, I gave the wrong answer.

Don't stop submitting information and suggestions. If you submit an article or an item for publication, you will be credited. It's great to see your name as a byline in a publication. Let's see if we can channel some of the enthusiasm in these items for the newsletter into increased interest in club activities.

Bob – N7KTP
 Solid Copy Editor

December Club Meetings

From the VE Team:

Board of Directors and Business Meeting

Location: Fire Station #51 – Silverdale
Date: Friday December 11th
Time: 6:30 PM until complete or 9:00 PM

December dinner:

Location: Clearwater Casino Buffet
Date: Thursday December 17TH
Time: 6:00 PM
Cost: \$17.65 per person

January Club Meetings

Board of Directors and Business Meeting

Location: Fire Station #51 – Silverdale
Date: Friday January 8th
Time: 6:30 PM until complete or 9:00 PM

General Club Meeting

Location: Fire Station #51 – Silverdale
Date: Saturday January 16th
Time: 10:00 AM to 12:00 PM

Project Night

Location: Fire Station #51 – Silverdale
Date: Friday January 22nd
Time: 6:30 PM until complete or 9:00 PM

Club Breakfast

Location: All Star Lanes – Silverdale
Date: January 30
Time: 09:00 AM

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Website Links:

NKARC web page: <http://www.nkarc.org>

Puget Sound Amateur Radio Nets:
<http://shortwaves.endmatrix.info/WESTSOUNDNETS.htm>

Note: The Radio Nets address is all on one line.

Contact Dave Norman at :
. webmaster@nkarc.org
with comments and suggestions.

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ARRL VEC 2009/2010 Examination Fee

The ARRL VEC exam fee for 2010 is \$15.00. A \$15 fee is charged to every person seeking a new license or upgrade as listed on the ARRL VEC Candidate Roster. That one fee pays for one attempt at each of the three exam elements. If an applicant retests an exam element that was failed moments earlier, another \$15 fee is charged (and another Roster entry is created).

At the November NKARC VE exam session, the last for 2009, there were eleven applicants, more than expected. All passed at least one element, and some more than one. As a result there were 7 Technician, 2 General, and 2 Extra licenses earned.

The sessions for the year included 6 bi-monthly sessions, one for a Technician license class, and one for a General license class. Not every applicant earned a license, but most did. Over the year 2009 there were 23 Technician licenses, 12 General licenses, and 8 Extra licenses earned.

Our VE exam schedule for 2010 at the Poulsbo Library is as follows:

- Saturday, January 2, 2010
- Saturday, March 6
- Saturday, May 1
- Saturday, July 3
- Saturday, September 4
- Saturday, November 6

All sessions will run from 9:00 a.m. to 11:00 a.m. If attendance stays high we'll consider changing from a bi-monthly schedule to a monthly schedule

Note that this puts our schedule back on Saturdays. The first Saturday is not the best choice, but it was not possible to schedule other Saturdays.

Horace Ory, K7ORY
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Ham Radio and Digital Communications:

The following is copied from the Wikipedia encyclopedia on the Internet:

Data transmission, digital transmission or digital communications is the physical transfer of data (a digital bit stream) over a point-to-point or point-to-multipoint transmission medium. Examples of such media are copper wires, optical fibers, wireless communication media, and storage media. The data is often represented as an electro-magnetic signal, such as an electrical voltage signal, a radio-wave or microwave signal or an infra-red signal.

While analog communications is the transfer of continuously varying information signal, digital communications is the transfer of discrete messages. The messages are either represented by a sequence of pulses by means of a line code (baseband transmission), or by a limited set of continuously varying wave forms (pass-band transmission), using a digital modulation method. According to the most common definition of digital signal, both baseband and pass-band signals representing bit-streams are considered as digital transmission, while an alternative definition only considers the baseband signal as digital, and the pass-band transmission as a form of digital-to-analog conversion.

With that in mind, how long have ham operators been involved with digital communications?

Answer next month. If you have an answer, send it to me at bobtomas@sprintmail.com

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Keep Kitsap Green:

Help the environment by properly disposing of discharged household batteries. This includes alkaline, regular zinc carbide batteries, and batteries with heavy metals such as ni-cads and lithium ion. The Solid Waste Facility on Hansville Road accepts the batteries as part of the county-wide recycling program. Otherwise, bring them to the meeting for transfer to the disposal site.

Do not bring lead-acid batteries to the meeting for disposal. Take them to the Solid Waste Facility.

MARS and Emergency Communications

If any one has question about Navy MARS, I can be of assistance. If interested in Army MARS, I am sure Chris (KB2SKP) would be glad to help.

MARS enjoys very disciplined communication operating procedures; achieving excellent emergency communications skill set. And as of 1 Jan 2008, all three services are interoperable, that is, they now can talk with each other.

For the more EMCON trained (ICS courses and experience) MARS is an entry into the countries SHARES system. You can Google that if curious at:

<http://www.arrl.org/news/stories/2009/11/03/11180/>

From: nnn0qzv (KE6OJ)

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Buy---Trade---Sell----Need

**One man's discard is another man's treasure,
Let the club know of it by putting it here.**

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Change Address or Call Sign?

Please notify the club secretary to update the roster if you changed your address, call sign or e-mail address. Include your phone number so that you can be contacted in case of emergency or for assistance. This will insure that you will get the latest news via the club newsletter. Either notify Norm (N7ORM) at the meeting or drop a card to NKARC at PO Box 2268, Silverdale, WA 98383-2268. You can also send the changes via e-mail to Norm or Bob Tomas at bobtomas@sprintmail.com

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Looking for Elmer:

Did you meet Elmer before you got involved in amateur radio? Or did you meet him after you got your license and he gave you good advice on how to start? Think back of the help he was in learning what those strange term like propagation meant. There is somebody else who now needs help. Why not introduce Elmer to that person? Better yet, you can become Elmer and help that person learn what this great hobby is all about.

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The EQ PHILOSOPHY

A GUEST EDITORIAL by Paul Cavnar, K7IN, WRRL 20/

VoIP, IRLP, Echolink and other internet-dependent modes of communication

While most of us are well aware of these modes, there are serious problems and deficiencies looming just over the horizon that need to be considered. Recently a bill proposed in congress would grant the President the ability to "shut down" our internet in order to protect government and military systems as well as vital infrastructure from cyber attack and denial-of-service attacks. While this may seem a good idea on the surface, it will instantly bring nationwide communications and commerce to a standstill if implemented. It will also render VoIP, IRLP, Echolink and other internet-dependent modes completely useless. While I am all for embracing new technologies, let's not toss out what has been proven over and over for many years because, very simply, it works.

Should our President decide he needed to isolate our American internet from the rest of the world, our ability to communicate, do business, or function via the internet could be crippled. Except for hard-line telephone connections or radio, communications would be rendered useless at that time. All primary internet hub locations would be isolated from each other and from all outside connections.

Regardless of who has the authority to sever these links, it is still subject to abuse since that decision to shut down will come from those in government who are just advisors to the President and whose honesty and integrity I personally do not trust [Amen]. Our nation can easily be brought to a standstill if our internet is "shut down" because virtually every facet of our lives is dependent upon the internet in one form or another.

So, while these internet-dependent modes are a great idea and can certainly move information efficiently under normal conditions, a good emcomm plan should not be dependent on them for handling emergency traffic. There is nothing that is more reliable

than a direct radio link between stations operating on independent or emergency power. That, my friends, is the absolute "bottom line" so, as the saying goes, "when all else fails..."

Let's not abandon our /emcomm fundamentals/ just because it's easier to turn on a computer. We still need to know how to get the message through efficiently and accurately. And practice makes perfect. I am not saying to toss your computer out the window. But also keep the dust off of your J-38. Don't get caught up in the fragile new technologies and lose your basic ability to communicate when needed. –

Paul Cavnar, K7IN k7in@att.net

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RACES/ACS Net Sessions:

The Kitsap RACES/ACS net is held on Sunday nights at 7:30 PM on the 145.43 repeater (-600 offset, 179.9 PL tone). Check in and be informed on emergency communications in Kitsap County.

The packet radio net in on 145.63 Mhz at 7:00 PM. Connect to K7EK-5 and type "convers" at the prompt. If you cannot connect to K7EK-5 directly, connect to the ELYSSA node on the same frequency and then connect to K7EK-5.

If you have 10meter capability, check into the HF Net on 28.330 Mhz USSB starting at 7:00 PM

There is a 6 meter FM net on 52.35 Mhz starting at 7:00 PM.

Connect to the various modes and verify your connectivity. Be ready and available when the need arises.

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**Merry Christmas
and
Happy New Year to All.**

**Turn the rig on 10m and
let Santa home in
on the beacon.**

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NATIONAL EMCOMM TRAFFIC SERVICE (N.E.T.S.)

The NATIONAL EMCOMM TRAFFIC SERVICE uses designated watch and calling frequencies. Public service amateur radio operators everywhere are invited to monitor these frequencies whenever possible. But when disasters or other incidents occur, emcomm operators are asked to warm up their radios and "light up" the NATIONAL EMCOMM TRAFFIC SERVICE..."24/7". Active operators know which bands are most likely to be "open" depending upon the time of day, season, etc.

During disasters and for other emergencies, the frequencies are "open nets". When traffic becomes heavy, they will become "command and control" frequencies with a net control station "triaging traffic" and directing stations with traffic to another (traffic) frequency. (At least 5 kHz away.) Proper net procedures are essential.

NETS does not maintain regular schedules and does not handle routine "make work" messages such as birthday greetings, "your license is about to expire", "book messages", etc. NETS is intended to /supplement/ and /fortify/ other networks by providing a vehicle for emcomm operators to originate, relay and deliver legal radio message traffic (I.e. - "first class mail") of any precedence, at any time, from and to anyone and anywhere--especially during disasters or other crises. NETS stations will cooperate and use other networks that are known to be capable of accurately and efficiently handling RADIOGRAMS.

*NATIONAL EMCOMM TRAFFIC SERVICE (NETS) WATCH • MONITOR • CALLING • TRAFFIC FREQUENCIES** All listed frequencies (except 60 meters) are nominal. Actual nets may be up or down as much as 20 kHz

1982 kHz (SSB)

3911 kHz-RADIO RESCUE (SSB and CW)

5332 kHz "Up" to other 60M channels as

necessary. 50W maximum ERP.

(Activated during actual incidents.)

7214 kHz

14280 kHz

ALASKA ONLY: 5167.5 kHz (USB emergency traffic only)

CW:

1911 kHz

3540 kHz

3911 kHz RADIO RESCUE (SSB and CW)

7111 kHz

10119 kHz

14050 kHz

ALASKA** - 3540/7042/14050 kHz

GULF STATES (LA, MS, TX, AL)
7111 kHz 1100Z-2300Z / 3570 kHz
2300Z-1100Z

During EMERGENCIES: 7111 kHz daytime, 3570 kHz nighttime.

(Times approximate depending on band conditions and changes in sunrise/sunset.)

From: KE6OJ

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Grid locator:

Looking for a proactive grid locator? Try...

<http://www.voacap.com/qth.html>

These coordinates will get you to Poulsbo 47.7429 N, -122.6436 W, after entering you can experiment w/ finding your QTH.

Tom, W7LUU

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Station Grounding Requirements

Perhaps the most confusing and misunderstood subject in radio is proper grounding of a base station. The confusion begins with the premise that there are two kinds of ground to contend with, **DC (Direct Current and low frequency Alternating Current)** ground and **RF (Radio Frequency)** ground. Both kinds of ground are needed for safe and efficient station operation but the two are frequently in conflict. The reason is simple. At very low frequencies current flows evenly throughout a conductor but as frequency is increased, current flow tends to concentrate more and more toward the conductor surface. At some point in the radio spectrum energy leaves the conductor altogether and launches itself into space. Our station ground has now become an antenna and while it is still a perfectly good ground at 60 Hz, the frequency that powers our refrigerators and washing machines, it becomes a liability at radio frequencies.

If grounding is so arbitrary, how can we arrive at a solution that satisfies both DC and RF requirements? It isn't easy but it can be done. There are three situations where grounding is important. (1) Short circuit protection, (2) Protection from lightning, and (3) RF grounding. Let's look at them in turn.

(1) Short circuit protection

According to Section 250-23 of the National Electrical Code, every building to which electrical power is provided must have an earth ground at the point where power enters the building. This ground is specified as a 1/2 inch by 8 foot galvanized iron rod driven into the earth **outside** the building at the service entry - meaning a point close to the utility meter and the fuse box. Everything electrical, including telephone service, television sets, computers and the like **must** be grounded at this single point - no exceptions. The issue is personal safety.

The u-shaped receptacle at every electrical outlet in the building is connected by a bare copper

wire to this earth ground and the mating u-shaped pin at the end of every modern electrical power cord connects the equipment chassis to ground via a green-colored wire. This ensures that the chassis of every piece of equipment in the building is at the same electrical potential - earth ground. This is important. I was once nearly electrocuted when I leaned against a 440 volt motor that had been mis-wired with the "hot" lead connected to the motor frame.

(2) Protection from lightning

Nothing can protect you or your equipment from a direct lightning strike. Fortunately the odds of a direct strike are about the same as being hit by a stray meteorite. Nevertheless it is prudent - and required - that you take some kind of precaution against static discharge in case of a nearby thunderstorm. Formidable static charges can accumulate on an antenna and can do serious damage to your radio if a safe discharge path to ground is not provided.

Section 800-21 of the National Electrical Code deals with the subject of lightning protection for antennas. It specifies a "lightning discharge unit" at the point where an antenna or transmission line enters the building. It also specifies that the ground wire for the device be connected **to the same point as the equipment service ground**. That means the 8-foot rod at the service entrance to the building. Fortunately you are dealing with DC here so the ground wire can be any length and only has to be large enough to handle the static discharge current. A number of useful gas-discharge devices are commercially available for coaxial transmission lines. The problem of protecting ladder lines and wire antennas is a bit more esoteric. A lot of solutions have been proposed, some of them quite ingenious. A quick search on the internet is a good place to start. The issue here is protection for your expensive equipment.

(3) RF grounding

Here's where the fan tends to get sticky. In order

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for electric current to flow, a complete circuit from source, through load, and back to source must be provided. Even though transmitted RF travels through space from transmitter to receiver, a return path (earth) should be provided - that is, if you're serious about communicating with anyone by radio. Of course a ground return is not always possible but a good one will ensure that most of the energy in your transmitted signal actually leaves the antenna and heads off in the desired direction. And here's the catch: The physics of radio requires a very short connection between your transmitter and an earth ground. A ground lead that's even a fraction of a wavelength at RF can act as a transmission line, complete with standing waves, and may even radiate energy in-or-out of phase with the energy radiated from your "real" antenna. Worse, reflected power can raise your station equipment to a high RF potential. Anyone who has received an RF burn from a key or microphone will relate to this. The issues are both personal safety and efficient transmission.

Practical considerations

Few of us have the option of locating a station within a few inches of a good earth ground. Remember that the National Electrical Code requires **all** equipment be connected to a common earth ground - the one that's located near the building service entrance. In my case, which is extreme, the station is located at the opposite end of the house on the second floor. The shortest connection I can hope for is a ground rod driven directly beneath the station window, a distance of 18 feet. But what about the NEC requirement for a common building ground? Simply tie the ground rods together with a #6AWG or larger wire. The length of this wire doesn't matter, the object is to ensure that all grounds are at the same electrical potential. You can drive as many rods as you want so long as you bond them all together and to the electrical service ground. I have a total of four and the 18 foot connection from the station to the first ground rod is made from 1/2 inch copper pipe. (At RF it's the surface area of the conductor, not the cross section that

matters.) This works for me but I spend most of my time at the CW portions of the HF radio spectrum. Above 40 meters the long ground lead begins to be trouble-some.

At higher frequencies I have to resort to some trickery with "stubs" and tuned circuits. I won't go into the physics of this but if you're interested, you can find out more from the ARRL Handbook for Radio Communications or by going to www.arrl.org/tis/info on the internet. The subject of RF grounding is complex and whatever approach you choose will likely end up a compromise between the ideal and the practical

I'm sure you're thoroughly confused and frustrated by now so I won't muddy the waters any more. To paraphrase the immortal words of Charlie Brown and Edward R. Murrow, Good ground. Good grief! Good night and good luck!

Paul Honore' W6IAM

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Power outlet safety

Continuing with the topic of electrical safety in the ham shack, it is worth learning about two devices that help to make the electrical system in the house and in the shack safer and less of a hazard - The Ground Fault Circuit and Arc Fault Circuit Interrupter.

The Ground Fault Circuit Interrupter or GFCI and Arc Fault Circuit Interrupter or AFCI are two different electrical devices that serve distinct purposes. A GFCI is designed to prevent electrical shock and is typically in damp and outdoor locations. The AFCI is designed to prevent fires and is usually on bedroom circuits. Information on these two devices and how they work to make electrical systems safer and limit hazards is at the following website:

<http://www.scelectrical.com/gfciafcinfo.htm>

It's worth the visit to see how important these devices are to better living and safer operating in the ham shack.