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NKARC
NORTHERN KENTUCKY AMATEUR RADIO CLUB

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The Feedline

Marconi Trust

By Dave Core, K8WDA

Recently, it occurred to me about how trusting Hams and all electronic hobbyists have to be. Just think of all the electronic theory we have to accept on trust. Have you ever seen an electron? What really happens inside a transistor? How can a hole move? Seriously, if a hole is just empty space, what's to move? If you can somehow force electrons, or whatever, to go up the feed line into an antenna, what happens to them? See what I mean? We just have to trust that good things will happen if we set up the right conditions.

Now trust isn't necessarily a bad thing. I had a college roommate who had a terrible time with Calculus 101. In order to understand Calculus we had to accept or trust some basic math axioms. My roommate had trouble with that. He got hung up on why he should trust the professor and as a result he fell behind.

On the other hand, we need to be selective about who or what we trust. Just because you read it on the Internet or hear it on a Ham band doesn't mean it's true. Right? Unfortunately, Hams seem to be a bit more trusting than they should be about antennas. Maybe that's because antennas are just not that easy to understand. In a way, antennas are a little like warts. A doctor once told me that there are so many home remedies for warts because warts often just go away on their own. For instance, if someone puts duct tape on a wart and it goes away, it must have been the duct tape that did it. In the same way, if Joe Ham loads up his box springs and works Outer Lost-hickastan, it just has to have something to do with all those in-phase helical elements under his mattress! Do you see where this is going? Don't run right out and buy a brand new, fabric covered, stacked helical array just because Joe said so.

Quarter wave vertical antennas work on trust. We all know they work. Who hasn't used one to work the local repeater? Yep, that little, plastic coated stub on top of your handheld is a quarter wave vertical. It may not be a physical ¼ wavelength, but the radio doesn't know the difference. Why does a ¼ wave antenna work on trust? Well, because it works a lot like a center fed ½ wave length antenna - but half of it is missing! So, in order for the ¼ wave antenna to work, it has to trust that something will act like the missing piece. That something could be the chassis of the handheld, a chunk of metal like your car or a few pieces of wire that form an artificial ground plane, or the earth under a ground mounted HF vertical.

Verticals have been around as long as radio. In fact, a ¼ wave vertical is also known as a Marconi antenna. VHF/UHF verticals work great, but HF verticals get mixed reviews. It's been said that HF verticals radiate equally poorly in all directions. That's a shame because they don't take up much real estate, and have a low angle of radiation which is desirable for DX.

So, if VHF verticals work well, why are HF verticals more fickle? Remember that thing about trust? Quarter wave verticals have to trust that whatever is under them, or connected to the ground side of the coax connector, will take the place of the missing half of the antenna. Most HF verticals are

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Dates to Remember:

Jan 10 – SW Ohio Digital Symposium
Jan 12 – NKARC Membership Meeting
Jan 17 – North American QSO Party, SSB
Feb 9 – NKARC Membership Meeting

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Repeaters (K4CO): 147.255+ and 444.350+ Edgewood (PL 123.0), 147.375+ Walton, 146.895+ Highland Heights. The 147.255 repeater is a linked Echolink node, accessible via N4IJS-R.

NKARC Net: Tuesdays, 7:30 PM on the 147.255 repeater

VE Testing: Testing sessions are held by appointment only on the 2nd Monday of each month, prior to the NKARC membership meeting. Testing begins at 6:00 pm. To make an appointment, contact Lyle Hamilton at ab8sh@arrl.net or tel. 513-315-4032

NKARC Web Site: http://www.k4co.org

NKARC Membership Meetings: 2nd Monday of each month at 7:30 pm at the Hilltop Church of Christ, 5300 Taylor Mill Rd (Ky. 16), Taylor Mill, KY. Visitors are always welcome!

The Feedline is published monthly by and for the members of the Northern Kentucky Amateur Radio Club. It is distributed via direct email to current NKARC members. **If you are a member but are not receiving your copy, please notify the Feedline editor.** Permission is hereby granted to any non-profit amateur radio group to quote or reprint from this publication provided appropriate source credit is given. Submissions for the February 2009 Feedline must be received no later than January 30. Submissions, address or call changes and circulation problems may be sent to the Feedline editor:

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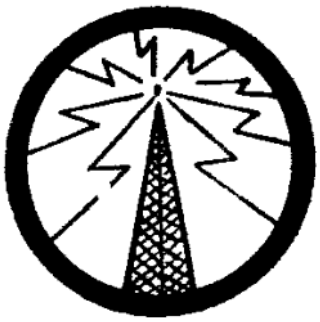
Top of the Tower

Happy New Year to all! I hope every one has had good and safe holidays. The beginning of a new year is a time to reflect on the year past and to get organized with things we may want to accomplish in the upcoming year. As always we hope to see all of you at the new location for our monthly meetings. I look forward to hearing any new ideas for our group in the New Year.



73,
Dann Fox

January NKARC Meeting

The January NKARC meeting will include a program by Mark Volstad, AI4BJ, on how to use an oscilloscope in the ham shack. Join us at the Hilltop Church of Christ in Taylor Mill, Monday, January 12 at 7:30 pm.

December Net Report

If you are interested in helping the club out and expanding your Amateur Radio skill set, please take a turn at running one of our weekly nets! This is a great way to hone your radio, net control, and message handling skills in a friendly environment. If you are interested, please contact Robert Kluck, N4IJS, at (859) 426-5588 or n4ijs@k4co.org

DATE	NCS	CHECKINS	TIME (MINS)	TRAFFIC
12/2/08	AJ4DK (Don)	9	21	0
12/9/08	KB4VKS (Mike)	6	18	0
12/16/08	N4IJS (Robert)	7	20	0
12/23/08	KG4SBG (Dennis)	6	20	0
12/30/08	N4IJS (Robert)	3	8	0
TOTALS		**31**	**87**	**0**

NKARC/KD7ARET Christmas Dinner

The annual NKARC/KD7ARET Christmas Dinner was held December 8 at the Golden Corral in Fort Wright. The event was well attended by club members, their families and friends. The photos below were taken by Robert Kluck, N4IJS.

"Marconi Trust", cont'd from Cover

mounted on, or near the ground. Unfortunately, earth ground is not always to be trusted.

Let's look at a little antenna theory. First of all, in a ½ wave, center fed antenna, current flows in both halves of the antenna conductor or element and is greatest at the feed point. Remember, a ¼ wave antenna is really a physically challenged ½ wave antenna. Part of it may be missing, but a ground plane, or earth ground, or something has to fill the gap. Antenna current flows in both the vertical element and in whatever makes up the missing half. Second, the antenna appears as a load, through the transmission line, to the transmitter. This magical load absorbs and radiates the power coming from the transmitter. The load, expressed in ohms, is a combination of the radiation resistance of the antenna, any reactance present, and the resistance to the current flowing in the antenna element itself. With a ¼ wave vertical, the element resistance includes the resistance of whatever is acting as the missing half.

On VHF and above, verticals are almost always designed to use some sort of metallic (low resistance) ground plane. Also, since a ¼ wave length at these frequencies is measured in inches rather than feet, there is little need (other than rubber duck antennas) to use loading coils or other tricks to make the antenna physically shorter than ¼ wave length. If the resistance of the antenna element, including the ground plane is .5 Ω and the radiation resistance is 50 Ω, or 100 times the element resistance, it's obvious that very little (approx. $1/100^{th}$) of the RF energy delivered to the antenna is going to be lost to resistance in the element, or heat.

On HF bands, especially 80 and 160, it becomes much more difficult to build a full length ¼ wave vertical. Also, we like to be able to use one antenna for several bands, so antenna designers add all kinds of traps, loading coils, capacitance hats, etc. to the vertical to shorten the antenna and get the job done. The resultant, shortened antenna may have a radiation resistance of 20 Ω or less at the lower frequencies.

To make matters worse, most HF verticals are ground (earth) mounted and unless you live in the middle of Great Salt Lake, the resistance of the ground under your shinny new, "Lightning Strike All Band Vertical" is probably much higher than ½ Ω. Remember, the earth is now acting as the missing half of the antenna. Depending on the type of soil, moisture content, etc., earth grounds are notoriously poor conductors. For purposes of electrical safety, a copper clad rod or pipe driven into the ground to a depth of 8 feet is considered an adequate ground if the resultant ground resistance is 25 Ω or less. For the sake of discussion, let's say the radiation resistance of an 80 meter vertical is 20 Ω and the element resistance (including the resistance of the ground) is also 20 Ω. Guess what, half of your precious RF is warming the worms!

OK, if you're tired of cozy worms and mediocre signal reports from you HF vertical, what can be done? Radials! Long ones, short ones, as many as you can stand to put down. On the ground, in the ground - it doesn't much matter. Just make sure that the connection between the radials and the ground terminal for your coax is a good one. Remember, the highest current is at the feed point so any resistance that you can avoid in this area will do the most good. Many experts recommend at least one ¼ wave length radial for each band you plan to use. More is better.

Oh, and don't be surprised if the SWR changes after you connect the radials. In fact, the SWR may go up. Now there's a scary thought! If the antenna efficiency is improved by adding radials, why on earth would the SWR go up? Here's why. If we go back to the example above, the 20 Ω radiation resistance and the 20 Ω element resistance add to look like a 40 Ω load to the feed line. Ignoring any reactance that may be present, the match between the antenna and 50 Ω coax will measure around 1.2:1. But, if the element resistance of the antenna is improved from 20 Ω to 10 Ω, the load now looks like 30 Ω, and the SWR goes up to 1.7:1. Don't worry; just get the power into your transmission line. The antenna is more efficient.

That's my opinion, but don't trust me. I've made lots of generalizations and taken some liberties here. There are hundreds of good antenna articles in publications and on the Internet. Go take a look. http://www.dxzone.com/catalog/antennas is a good place to start. I'll trust you'll have fun.

73,
K8WDA

Weaver's Words

Jim Weaver, K8JE
Great Lakes Division Director, ARRL
E-mail: k8je@arrl.org; Tel.: 513-459-0142

Former Division Director, ARRL President W4OYI SK

It is with great sadness that I report the death of George Wilson, III, W4OYI. George was a resident of Owensboro, KY. A long-time amateur, George previously held numerous ARRL appointments. He was elected Kentucky Section Manager, Vice Director and subsequently Director of the Great Lakes Division. He eventually became the first and only person from the Great Lakes Division to be elected ARRL President by the Board of Directors.

The George S. Wilson, III, W4OYI Award is given biannually at GLD Division conventions in honor of George's service to Amateur Radio. The award recognizes an amateur in this Division for lifetime achievement in Amateur Radio.

George served as ARRL President from January 1992 to July 1995. It was during a trip to Washington, DC on behalf of ARRL that George suffered a near-fatal stroke. A true fighter, he survived the stroke, but was left totally paralyzed on his left side. Although he was unable to maintain an active public life, he was fully alert and kept his great interest in Amateur Radio. He was active in the Owensboro Amateur Radio Club, Owensboro, KY. George died November 25.

Those who knew George knew him as an excellent person and an outstanding ham. I knew him also as a sharing and knowledgeable friend and advisor. He will be missed greatly.

George is survived by Marian, his wife of 51 years, by his children Berry and Jennifer, and by two grandchildren.

Gary Johnston, KI4LA re-elected Vice Director

Current Great Lakes Division Vice Director Gary Johnston, KI4LA was re-elected to the Vice Director chair for another three years in a term that will begin at noon, January 1. Gary won a highly-contested race over Michigan Official Club Coordinator Dan Romanchik, KB6NU and Division Legislative Action Chairman John Meyers, NB4K. Meyers is also former Kentucky SM. Gary edged Dan by a 13-vote margin and John by 63 votes in an election that saw 3578 votes cast. Gary served as Vice Director to former Director George Racer, WB8BGY. Gary served as director for six months after George resigned.

Holy and Happy Holidays

Whether you celebrate Christmas or Chanukah or another holy or holiday period, the Director and Vice Director wish you and your families the very best. May you also have a very Happy New Year throughout 2009.

FCC requests help from hams

By this time, most ARRL members have heard that the FCC asked the League to help in the coming conversion of analog TV (ATV) to digital TV (DTV). The Commission is concerned there will be problems during this switchover because a number of people may not understand how to connect the converter box or deal with some other aspect of the change. A number of such problems occurred when a trial switch to DTV occurred.

I will not discuss the rights or wrongs, if any, of the coming switchover. It is going to happen. I won't even discuss whether it was right or wrong of FCC to request help through ARRL. This, too, is a done-deal -- they've already asked. What I will discuss is watch-outs I suggest us who lending a hand may want to take to avoid the likelihood Amateur Radio ends up in hot water.

Many of us older hands remember public relations problems that occurred in the 1960s and 1970s when we tried to help with television interference (TVI) that was

blamed on amateur transmissions. The answer to the TVI typically was to put a simple filter on the TV set in much the same way the DTV converter will be hooked up. A number of hams went to the length of obtaining these filters and installing them on neighbors' TV sets, trying to be good neighbors.

The problem was that a number of TV sets "went out" soon after filters were installed. Many owners of these sets blamed the hams for these failures — never mind that the set was quite old and destined to fail soon.

A lesson from this situation soon became apparent. This is, "Though shalt keep thy hands off thy neighbor's TV set." Give them the filter, but have them install it themselves or let them have a TV technician do it.

The same could happen if we attach DTV converters to TVs. With a high percent of the sets that need converters being a few years old, we should not be surprised if a number of them fail shortly after a converter is attached.

The first rule I suggest anyone who helps out with the ATV to DTV project is to stay away from your neighbor's or a stranger's TV.

The second rule I suggest is to be certain that the instructions provided for connecting converters clearly indicates they come from the Federal Communications Commission of the US Government. These are not our instructions. We are relaying them at the request of the Federal Communications Commission of the US Government. Notice I did not merely say "the FCC." Too many people have no idea what the FCC is. In addition, many may not understand even what the Federal Communications Commission but "US Government" should be understood.

What we can take credit for is that we are taking the time and effort to help our fellow citizens. A few ways we can do this are to set up stands in shopping centers and stores where high volumes of people shop, give demos to church, civic and fraternal groups, or operate phone banks in conjunction with TV and radio stations to spread the FCC's instructions. TV stations having much to stake in the changeover and are taking the lead in publicizing "how to's" related to it, local clubs might find them willing allies in helping set up and publicizing demonstrations.

I understand the FCC will provide instructions to distribute to consumers and scripts for use over the telephone. These should clearly indicate the source of the information is the Commission. They merely ask us to volunteer time and in a way serve as parrots to distribute the information.

Provided we amateurs do not fall into the trap of being overly helpful or decide to show first hand how technically elegant we are, there should be very little chance this project will haunt us. Let the glory and problems (if any) go to the FCC.

Let us be fully satisfied to be known as good citizens who help our fellow citizens and our government when this is needed. So, feel free to put up signs stating who you are. Feel free too to talk to people about Amateur Radio and the technical advances we are making ourselves in digital and other communications, but stay away from taking credit for the service you are forwarding from the FCC.

This is my thinking about the project. If you choose to help with it, thanks. If you decide you cannot help, thanks for thinking about it.

Remake of ARRL Internet facilities in progress

Some of you may have noticed that the Board of Directors approved a total remake of the League's Internet presence at our last meeting. As we approach the end of this year, the project is coming along nicely. Some improvements are visible. Others remain in the implementation stage and still others are in their relative infancy. We have contracted with Fathom for the project. Fathom provides web engineering for a number of major corporations, including their customer interface.

We expect the project will continue throughout 2009. Progress is going fairly well even though the last hurricane season necessitated Fathom to redirect much of its staff to repairing damage done to major clients in the stricken areas. When completed, the ARRL will be able to provide a number of new and exciting services to members and affiliated clubs.

Triple Play season to open

It has nothing to do with the "hot stove league" or "fantasy baseball" or even "Tinker to Evers to Chance," but it should prove to be a lot of fun. What is it? It is the new Triple Play WAS Award that has just been unveiled by the ARRL. It refers to a new form of Worked All States (WAS) that begins January 1 and requires working three new WASs -- one each on phone, CW and RTTY/digital. QSOs for the Triple Play award must be submitted through Logbook of the World (LoTW) to receive credit. Paper QSLs are not accepted for this award.

QSOs for the award must be dated no earlier than January 1, 2009. Three sets of confirmed QSOs with each of the 50 US states must be presented via LoTW for the award. All bands available to US amateurs may be used for the Triple Play with the exception of 60 M.

Further details on the new award may be found at

http://www.arrl.org/news/stories/2008/12/05/10490/?nc=1/

One added major point is that US applicants for the Triple Play award must be members of ARRL.

Happy hunting!

(Tinkers to Evers to Chance? This was a phenomenal triple-play combination for the Chicago Cubs way back when! I'm showing my age even though I didn't know what baseball was while they were still playing!)

Cal Darula: Special Assistant to record youth programs

Your director has appointed Calvin Darula, K0DXC Special Assistant to record youth programs in the Great Lakes Division. Cal moved to Southern Ohio from Minnesota where he was Assistant Section Manager for Youth. He lives in Jackson, OH where he attends school.

The task Cal has accepted is to contact as many leaders as possible of youth programs in this Division during coming weeks. He will prepare a report on the activities the many clubs or schools offer to attract, educate and encourage young people to become active Amateur Radio operators. Section Managers Joe Phillips, K8QOE (Ohio), Dale Williams, WA8EFK (Michigan) and Jim Brooks, KY4Z (Kentucky) have agreed to facilitate Cal's efforts to contact the club officials.

It is believed that developing the report and sharing it throughout the Division may provide valuable insights that will increase still further the results of our work to recruit and develop young amateurs. I encourage Division members to welcome Cal and to assist him in this important project.

After being off-the-air for several weeks because of his move to Ohio, Cal is up and running with a full station. In addition to general operating, he is active in the ARRL, World Wide Young Contesters, FIST, NAQCC and SKCC.

ARRL Loyalty Awards

The ARRL appreciates all of its members. Consequently, many years ago it set up a program to give special recognition to members who have shown particular loyalty to the League by maintaining continuous membership for specific lengths of time.

Very nice award certificates are sent automatically to members who have had continuous membership for 50, 60, 70, 80 or 90 years. There is no charge for the certificates.

Members who wish to have a more elegant award may request a very nice plaque. Unfortunately the current state of economics dictates that these plaques must be obtained at ARRL's cost to have them made plus the cost of shipping. The cost to ARRL for the plaques is $51.95. This price is pretty good when one considers that I recently paid nearly $35 to have a printed certificate covered with Plexiglas and tacked onto a not-extravagant wooden mounting board.

If anyone has held continuous membership for one of the 10-year intervals listed above, please contact Mary Hobart, K1MMH — k1mmh@arrl.org — or me — k8je@arrl.org — to check on your award. Please note that membership must not be interrupted by lapses if one is to be eligible for these awards.

SW Ohio Digital Symposium - correction

I appear to have attempted to move the location of the SW Ohio Digital Symposium in my last e-letter. The correct location for it is Thesken Hall on the Miami University Middletown Campus, Middletown, OH as usual. The date is January 10, 2009. Thesken Hall is the first major building to the right of the drive into the campus. A parking lot is across the drive.

The agenda of very interesting presentations at the Symposium has been set; however, anyone wishing to set up a demonstration in the exhibit area or to publish have a paper included in its published proceedings (a CD) is invited to contact Jay Slough, K4ZLE at gungho@embarqmail.com.

A sampling of what was presented last year is at http://www.swohdigi.org. Please send your ideas and suggestions to K4ZLE, gungho@embarqmail.com

ARRL Strategic Plan: Member input requested

How many of you have heard — even said — that the ARRL leadership does not ask for the opinions and wishes of League members? Whether you have believed these earlier charges — or not — the ARRL Board of Directors wants your help as it develops a revised Strategic Plan to cover the coming several years. Yes, Uncle Hiram wants your input.

The Board of Directors developed the current Strategic Plan of ARRL goals and objectives in special session in St. Louis several years ago. It was revised in 2006. It is time to revise this plan again to consider changes in society and technology that have occurred since the 2006 revision. It is intended that day two (Saturday) of the July 2009 Board will be devoted to working on the new revision. The ARRL Executive Committee will tackle drafting revisions beginning in early 2009.

All members are requested to contribute thinking to the coming revision. The mechanics of doing this are very simple. All one needs to do is to go to http://www.arrl.org/members-only/stratplan/. To read the current Plan, click on the link "The ARRL Strategic Plan" that is just below the opening paragraph on this site. Type your comments into the space provided here.

The Strategic Plan is used by the Board and staff to maintain focus when establishing and pursuing policy and projects.

Tentative Schedule:

2009

1 Jan: (Noon) New terms of Director and Vice Director begin.
10 Jan: SW Ohio Digital & Technical Symposium, Thesken Hall, Miami U.-Middletown, Middletown, OH - Gary, Jim.
15 Jan: A&F Committee, Newington, CT - Jim.
16-17 Jan: Board of Directors meeting, Newington - Gary, Jim.

A more complete schedule will appear in the next issue of Words. If you wish to have a member of the Division cabinet attend a meeting or hamfest/swap this year, please contact me at k8je@arrl.org.

73, Jim

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