

Hampden
County
Radio
Association



OCTOBER 2008

ZERO BEAT

<http://www.hcra.org>

Jim Ussalis, W1EQO Antennas Made Simple

Jim promises to make antenna talk simple
for everyone to understand.





Grand Raffle Prize
\$250.00
HRO Gift Certificate



AUCTION

November 7th !!!

Turn your old 'stuff' into cash!

- *Set-up at 6:30 PM*
- *Auction starts at 7:30 PM*
- *Win a \$250 Gift Certificate to HRO!*
- *Coffee & Donuts!*
- *Lots of bargains!*



Contact Jim, KK1W, for details - 413-245-3228 or kk1w@arrl.net

Auction held at:

Feeding Hills Congregational Church
21 North Westfield Street
Feeding Hills, MA 01030

Just North of the Pride station at the
intersection of routes 57 and 187

Talk-in on the 146.94 repeater

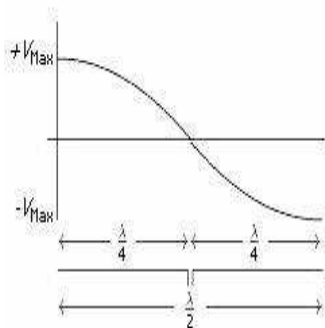


AUCTION RULES:

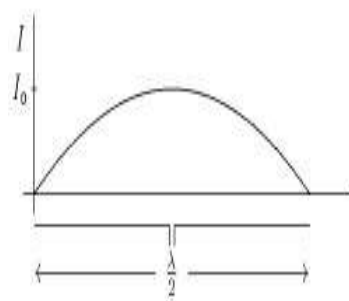
Please—no computer monitors
Amateur radio or computer related items only.
Mark all items with name/call and minimum acceptable bid.
Items without minimum will sell at any price!
10% of selling price goes to the HCRA.
Maximum fee - \$10.00
If it doesn't sell - you bring it home!
More info: www.hcra.org

When I took my Novice exam, one question was “..The most important part of a radio station is...” The answer was the antenna, or better yet, antenna system because it includes the feed line, transmatch (antenna tuner), ground, and counterpoise. It is easy to look up on the internet, or better yet, the antenna manual, to find the formula, and directions on how to construct a dipole antenna, but there is a lot of information that is not readily apparent but is good to know.

A center fed half wave dipole is actually two quarter wave sections of wire, fed in the center by the feed line. It may be fed directly by coax, and there are many thousands of dipoles that are; by coax through a 1:1 balun (**balance unbalance**); or with balanced feed line (which makes for a great antenna but we will cover this another time). With coax, I strongly recommend the \$30 investment in a good current balun. This makes the balanced dipole, and the unbalanced coax compatible. It also helps prevent RF from traveling back down the outside of the braid causing SWR or TVI problems, and it provides an excellent way to connect the coax to the dipole. A used balun is often not a good investment.



A simple dipole can be used on all odd harmonics. For example, if you cut your dipole to be resonant (an antenna is only resonant at one frequency or odd multiples) on 7.1 MHz, it will also be resonant on the third harmonic of 21.3 MHz. Do not use it on the even harmonics (14.2 MHz for example) as the SWR will be high and losses increase. When fed on the primary or odd harmonics, the voltage lobe will be minimum (left center) and the current lobe will be maximum (right center).



Dipole Voltage curve

Dipole Current Curve

A dipole's final length is affected by many things. The earth type at your location; proximity to everything like trees, barns etc.; the thickness of the stranded wire that you use (thicker=shorter); insulation (yes=shorter); and height above ground (both higher & lower than one-half wavelength = shorter); and the proximity of the ends to objects or trees. Also, contrary to common belief, fresh water does not make a good ground; only salt water does. (This sentence does not fit anywhere but is good to know)

Height above ground has two important effects. First is the angle of radiation. 15 to 30 degrees is ideal for DX (long distance) communications and a nice number, but many of us cannot get our 40 meter antenna that high (67'), and on 80 meters (133'), almost all of us fall into that category. As a ball park "goal", your resonant dipole ideally should be at least as high as it is long (one-half wavelength). To that most of us say "yeah right!". So lets be more realistic and say that it should be at least as high as one-half of that length (one-quarter wavelength). This would be 33' on forty meters and is more realistic for most of us. But if that is still too high, please note that there are many hams winning awards with their antenna in their attic. How about - as high as possible!

The second important effect of height is the impedance of the antenna. If you ask most experienced hams what the impedance of a dipole is, the response will be 70 ohms (more or less). Actually, if you have it installed one-half wavelength high, then that answer is correct (more or less). If your antenna is one-quarter wave high, then it will probably be closer to 80 or 90 ohms. Lower than a quarter wave the impedance will drop sharply closer to 50 or 60 ohms but too low and your angle of radiation would be near vertical and your ability for DX would be affected. Why is all this important you ask? Would you choose 50 or 75 ohm coax for your antenna based on the above info. I use 75 ohm (RG 59), but both will work. That's all the room for this month!

Next month we will discuss the feed line. Until then, take the time and look for some voltage and current node drawings in the manual (or on-line) for a resonant dipole... Also check out the angle of radiation drawings for different heights; and the radiation patterns for a dipole for its primary and third harmonic. It is really cool stuff!! Here is a great antenna website : WWW.cebik.com

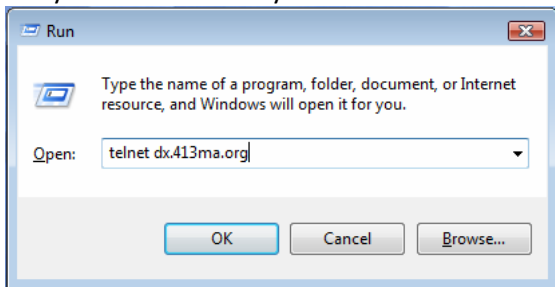
The DX Cluster and You by Mike DeChristopher, K1KAA

Are you a contester? Are you a DX'er? Do you want to work a few new ones this summer? Well, join the club! It is now easier than ever, though much of the basic technology is still the same, and can now be accessed from anywhere in the world.

This "basic technology" is the packet DX clusters now available to all hams. Don't be put off by the word packet, however. Clusters can be accessed by a variety of nodes, most of which have both RF and telnet ports. This means that anybody with a 2m radio, a TNC, and a computer or dumb terminal can still access it. It also means that anybody with internet can access the same cluster.

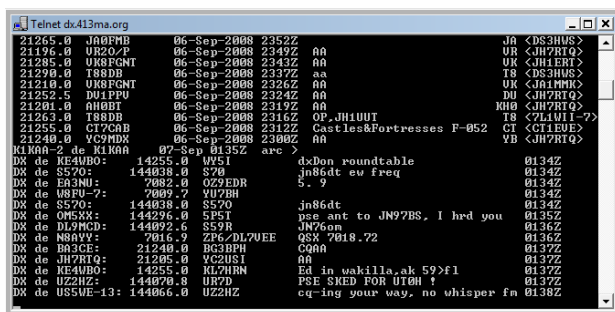
The principal of DX clusters is that any station can spot another station and their frequency. This alerts other stations as to the juiciest DX or – for us contesters – that last needed multiplier. There are gentleman's agreements, however. For example, spotting a busted or inaccurate callsign is considered poor practice. Self spotting (the act of spotting yourself to attract more QSO's) is in very poor taste, and even illegal in several contests. This includes using a different callsign to perform the self spot.

Connecting is very simple. I maintain a DX cluster node at my station, which currently is accessible via telnet only. The RF link may be available soon to service the greater Springfield area. The easiest way to open telnet is to



open your "start" menu, then click on "run" and type "telnet dx.413ma.org". You should see a message welcoming you to node K1KAA. Once you log in with your callsign, you should see a stream of spots flowing in. Most logging programs and radio suites will have built-in spot suckers, which extract these spots and throws them up on a visual bandmap. Reading from the raw stream is perfectly fine as well.

If you are using Windows Vista, you will have to activate the telnet client from within your control panel. If you plan to use a logging program or other related program to access the cluster, this step will be unnecessary.



Once connected to a node, you will see spots flowing in from not only my node, but from other nodes around the world. This forms one big "reflector", if you will, which is known as "the cluster". Though all spots originate from a home node (there are hundreds), they reach the public domain at the cluster.

You will also see other data streaming. This data includes weather reports, user announcements, and even private messages.

There are also inter-node messages that are viewable by anyone logged into the node (by typing "directory"). You should be sure to set your filters so that you receive only announcements, spots, and weather relevant to you. The system of filters and presets can be found by typing "help" once logged in.

Using the cluster while operating is a valuable skill, even for the non-contest operator. While upper-end users will have spots streaming into a bandmap for optimized point-and-click tuning, you can also use the raw stream to hunt for that rare DX. Some users stay logged into the cluster for days or weeks at a time, and are not just from the USA.

Since starting my cluster in May 2008, I have had over 300 different users from over 12 DXCC entities. Older, more established nodes, such as those run by K1TTT or K3LR experience myriads of users all day, every day, from all over the globe. We all connect to the same cluster, however.

There are even *more* advantages. I maintain several connections to my own node at all times, just so I can watch which bands are open, and which paths are propagating. If I see a W1 spot a JA, I know that I can probably beam northwest and work Asia. If I see only Europeans spotting Europeans, I know not to bother beaming northeast. In fact, you can get good at reading spots and being selective. You will know, just by the prefix of the spotter, if you can hear the DX. This increases efficiency, and can lead to more cognitive band changes during a contest. You may see me forward emails to several groups when I see (and hear) the open paths. I would never have known about any of them, if it wasn't for the cluster.

While connected to any node, using the "help" command will show a menu of filters, settings, and other "goodies" for you to enjoy. "Help" is also useful for just that: help. If you have any questions or are having problems using the system, you can find many answers there. You may also find tips and tricks at www.ab5k.net. Terry, AB5K, wrote the AR-Cluster program, which is the program that powers my node, as well as many others across the globe. The user guide is quite extensive, and can be found on his website.

In exchange for this fantastic service that is 100% free for you, the user, what do we ask in return? We only ask that you return the favor by spotting others. In the raw telnet stream, you can do this by typing "DX [call] [frequency] [notes]". If I were to spot ZZ1ZZ on 21.300, it would look like this: "dx zz1zz 21.300 loud". Then, simply press enter, and your spot is sent to the cluster via whatever node you happen to be connected to.

You can work new entities or improve your score with a barrage of tips and tricks, but do not count out the cluster. It works hard – 24 hours per day, 365 days per year – just for you. Learning to use it correctly is beneficial to your improved performance and enjoyment.

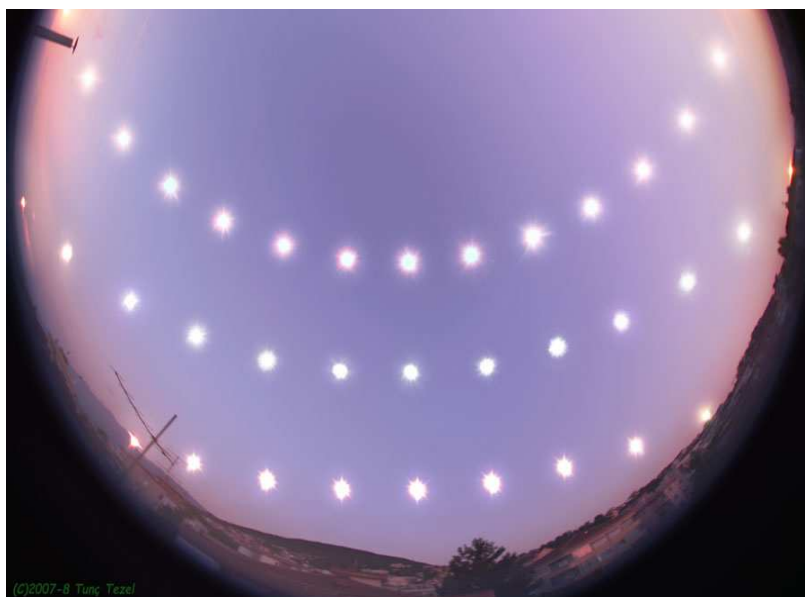
If you have any questions or comments, please email me at k1kaa@arrl.net. You can also drop me a message on the cluster (type "t k1kaa-1 Hi, Mike").

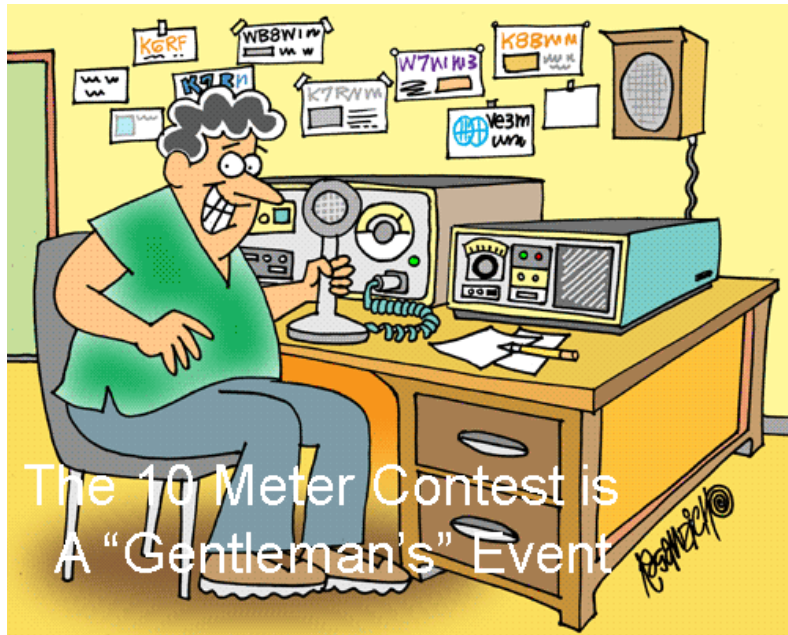
73 es gud dx, de Mike K1KAA

Equinox: The Sun from Solstice to Solstice

Credit & Copyright: [Tunc Tezel \(TWN\)](#)

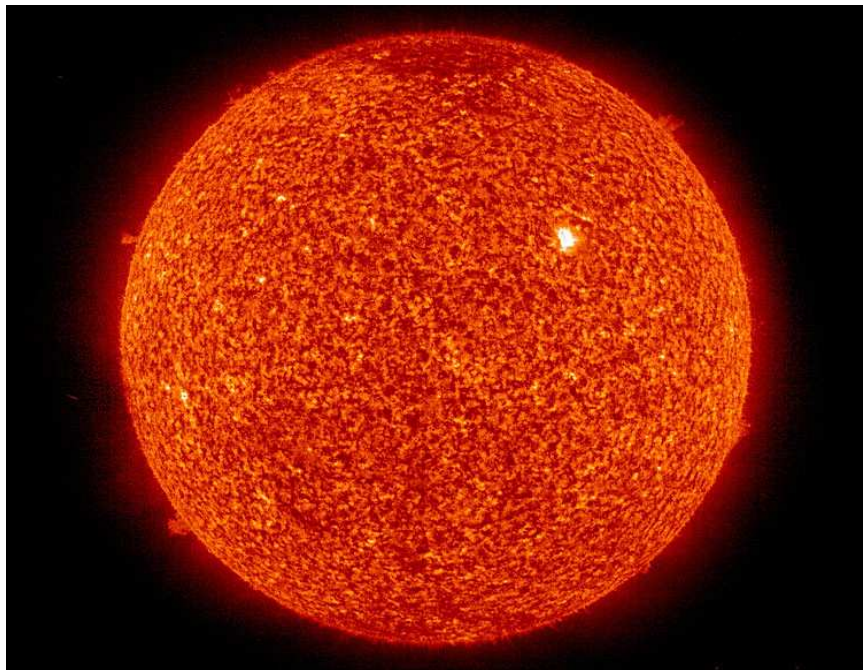
Explanation: Today is an equinox, a date when day and night are equal. Tomorrow, and every day until the next [equinox](#), the night will be longer than the day in Earth's northern hemisphere, and the day will be longer than the night in Earth's southern hemisphere. An [equinox](#) occurs midway between the two [solstices](#), when the days and nights are the least equal. The picture is a composite of hourly images taken of the Sun above Bursa, Turkey on key days from solstice to [equinox](#) to solstice. The bottom Sun band was taken during the [winter solstice](#) in 2007 December, when the Sun could not rise very high in the sky nor stay above the horizon very long. This lack of Sun caused [winter](#). The top Sun band was taken during the [summer solstice](#) in 2008 June, when the Sun rose highest in the sky and stayed above the horizon for more than 12 hours. This abundance of Sun caused [summer](#). The middle band was taken during the [Vernal Equinox](#) in 2008 March, but it is the same sun band that [Earthlings](#) will see today, the day of the [Autumnal Equinox](#).





The 10 Meter Contest is
A "Gentleman's" Event

Solar Update



Active Region 1002 on an Unusually Quiet Sun

Credit: [SOHO Consortium](#), [EIT](#), [ESA](#), [NASA](#)

Explanation: Why has the Sun been so quiet recently? No one is sure. [Our Sun](#) has shown few active regions – that house even fewer associated [sunspots](#) – for over a year now, and such a period of relative calm is quite unusual. What is well known is that our Sun is in a transitional period between [solar cycles](#) called a [Solar Minimum](#), where solar activity has historically been reduced. The stark lack of surface tumult is unusual even during a [Solar Minimum](#), however, and activity this low has not been seen for many decades. A few days ago, however, a [bona-fide active region](#) – complete with sunspots – appeared and continues to [rotate](#) across the Sun's face. Visible above, this region, dubbed [Active Region 1002](#) (AR 1002), was imaged in [ultraviolet light](#) yesterday by the [SOHO spacecraft](#), which co-orbits the Sun near the Earth. Besides the [tranquility](#) on the Sun's surface, recent data from the [Ulysses spacecraft](#), across the Solar System, [indicate](#) that the intensity of the [solar wind](#) blowing out from the Sun is at a fifty year low. Predictions hold, however, that our Sun will show more and more [active regions](#) containing more and more sunspots and flares until [Solar Maximum](#) occurs in about four years.

Venture Crew



**ANNOUNCING:
General Class Study Group**

Sponsored by BSA Venture Crew 510

There will be a study group forming on October 7th, 2008, at 7:00 PM at the Moose Family Center, 244 Fuller Road, Chicopee, MA. Jim Machia, KB1PRB, will facilitate the study group. Jim is an electronics engineer by trade. He and his son (KB1PRA) will be participants as well, as they are both Technician Class license holders. There is no charge for this event, but the purchase of an ARRL General Class License Manual is highly recommended. The study group will continue each Tuesday night for eight weeks, culminating with a special exam session administered by the WMVEC team. Questions and book orders can be directed to John Pise, Kx1x (kx1x@arrl.net) or Jim Machia (machiaj@msn.com).

**ANNOUNCING:
Technician License Course**

Sponsored by BSA Venture Crew 510

There will be a technician license course beginning on October 7th, 2008, at 7:00 PM at the Moose Family Center, 244 Fuller Road, Chicopee, MA. The class will be organized by John Pise, Kx1x, with guest presentations by local hams. The course is open to everybody and there is no charge. The purchase of an ARRL Technician Class License Manual is highly recommended. The course will concentrate on the Technician Class questions and answers pool, and should last no longer than eight weeks. On the last week there will be a special exam session administered by the WMVEC team. Last year's course netted 13 new Technicians (a 100% pass rate), consisting of 7 adults and 6 youth (ages 12 and up). Questions and book orders can be directed to John Pise, Kx1x (kx1x@arrl.net).

Zero Beat Contributions: Anything of interest is welcome.
Please submit your ideas, articles and more to
wb1dby@comcast.net. Thank you,
Larry, WB1DBY, Zero Beat Editor

HCRA 10m Net

Join NCS, Tom Doyle (n1muv),
each Monday night at 7:30 PM (local) on

28.375 MHz

Get the latest local word, join good friends,
take part in good conversation each week!!!
Anyone can join in, don't be shy!!!

Have you tried IRLP yet?

IRLP is the Internet Radio Linking Project, connecting radios over the Internet. With your 2m radio, you make contacts all over the world. HCRA sponsors an IRLP node, in South Hadley, MA. It is there for your use, please give it a try (at least turn it on and listen) 146.46 simplex, 114.8hz PL Kx1x, Node #7270, South Hadley, MA.

For a list of IRLP nodes and other IRLP information, go to:
<http://www.irlp.net/>

WE NEED YOUR SUGGESTIONS

We are asking for your suggestions and ideas for future HCRA meetings. The recent success of HCRA has been, in part, because of its interesting and timely key speakers and topics.

If you can help, please contact Jim, KK1W at
kk1w@arrl.net or (413) 245-3228.

*Questions, Comments, and Suggestions
Can Be Directed To:*

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Open—your name here!

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IRLP Trustee

*John Pise, Kx1x
(413) 532-7474 kx1x@arrl.net*

From the Shack...

If you missed last month's meeting, don't make it two in a row!

This month our guest speaker is not only an expert on antennas but a member of HCRA as well. Have you ever wondered about how to put up a really good antenna without spending a lot of money? Should you be worried about SWR? Do all antennas have two wires? These questions and more will be covered at the October meeting.

Say hello to Jim Usailis, head of National Wireless, engineer, instructor and amateur operator W1EQO. Jim will share with us much about antennas and will focus on keeping it simple. When you leave tonight I know you will have a much better idea about how to build an ultimate skyhook and how it works as well. Come early to get a good seat!

Membership renewal is coming. Tonight is the last chance to renew your HCRA membership and win a great raffle prize. Everyone that either renews or becomes a new member before the end of the October meeting will be entered in the 'sign-up' raffle. The prize this year is a **Tom Tom One 130 vehicle GPS**. This handy little gadget will gladly tell you where to go and won't get upset if you don't pay attention. Worth over \$150 it could be yours for free if you renew by October 3rd.

Steaming Tender reserved for the Holiday Party. Based on the poll at the September meeting we have decided to move this year's Holiday Party to the Steaming Tender Restaurant in Palmer, MA. Featured on 'Good Morning America' this charming location in the old railroad station on Depot St. will make a perfect place for our holiday get-together. John, Kx1x will be handling the menu and sign ups. John will be in touch with all members very soon so we can get your menu selection in time for the party. Check out the restaurant at: <http://www.steamingtender.com/>.

Are you a member of the HCRA mailing list? What's the best way to keep in touch with what's happening? Why the HCRA mailing list, that's the best and easiest way. If you're not a member of the list take a look at our web page at: http://www.hcra.org/mailing_list.htm for all the particulars. The list is spam free and a perfect place to ask technical questions, list items for sale and find out about coming events. Best of all, it doesn't cost a cent! Join up now so you don't miss anything important.

Going, going GONE! The annual HCRA auction is just a month away. Now's the time to start pulling out the stuff you bought last year and bring it down to trade if for different stuff! The auction is always a fun time with great bargains, a little humor and a look into amateur radio history all rolled into one. Buying, selling it makes no difference. It's all fun! Free admission for all and a great raffle prize too. This year the first prize is a \$250 gift certificate to HRO. Wouldn't that be neat?

See you in October,
Jim, KK1W

The First Fox Hunt of the Year Results

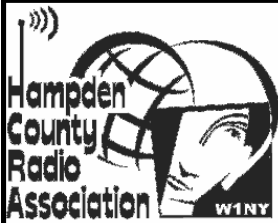

By Jake Krainson, KB1NSN

The first club Fox Hunt of the year was great. When people arrived they were greeted by Jim, K1JAW, and given a sheet of paper with some tips for fox hunting. Some people got a diode to pinpoint the exact location because of their antennas. People were also given one more tip; "If the fox is a fox than the fox is not the fox" (There was a plastic fox right near the real one.) Then they would walk out into the middle of the field behind the parking lot turn around in circles and then start walking to one side of it. About five to ten minutes later they came back with smiles on their faces and said to Jim: "Nice hiding spot." For those of you who couldn't make it to the meeting or didn't find the fox, it was cleverly rubber banded behind a bird feeder about five feet up in a tree. I think everyone who participated in the fox hunt had a great time, and couldn't wait for another one.



Renew now and win a Tom Tom GPS!

Fill out the application below and either mail it in or bring it to tonight's meeting!

	<h2 style="margin: 0;">HAMPDEN COUNTY RADIO ASSOCIATION</h2> <p style="margin: 0;">P.O. Box 562 Agawam, MA 01001</p> <p style="margin: 0;"><i>Application for New or Renewal Membership</i></p>								
<p>DATE: ___ / ___ / ___</p> <p>NAME: _____ CALLSIGN: _____</p> <p>ADDRESS: _____ LICENSE CLASS: _____</p> <p>CITY: _____ STATE: _____ ZIP: _____</p> <p>PHONE: Home (____) _____ - _____ Cell (____) _____ - _____</p> <p>Work (____) _____ - _____ - ____ ext ARRL Member: <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>E-mail: _____ @ _____</p>									
<p>Type of application: <input type="checkbox"/> New <input type="checkbox"/> Renewal</p> <p>Class of application: <input type="checkbox"/> Regular <input type="checkbox"/> Family</p> <p>Zero Beat Delivery: <input type="checkbox"/> email <input type="checkbox"/> USPS</p>		<p><i>Donations are tax deductible!</i></p> <p><i>Thanks!</i></p>							
<p>Please list additional family members:</p>									
Name	Call	ARRL Member	e-mail						
		<input type="checkbox"/> Yes <input type="checkbox"/> No							
		<input type="checkbox"/> Yes <input type="checkbox"/> No							
		<input type="checkbox"/> Yes <input type="checkbox"/> No							
<p><u>My interests: (please check all that apply)</u></p>									
<input type="checkbox"/> Alternative Power	<input type="checkbox"/> Digital Modes	<input type="checkbox"/> QRP							
<input type="checkbox"/> Antennas	<input type="checkbox"/> DX'ing	<input type="checkbox"/> Satellite							
<input type="checkbox"/> Board of Directors	<input type="checkbox"/> Emergency Communication	<input type="checkbox"/> Teaching Ham Classes							
<input type="checkbox"/> Club Events	<input type="checkbox"/> Field Day	<input type="checkbox"/> Training (Elmering)							
<input type="checkbox"/> Contesting	<input type="checkbox"/> Fox Hunting	<input type="checkbox"/> VHF/UHF							
<input type="checkbox"/> CW	<input type="checkbox"/> Kit Building	<input type="checkbox"/> ?							
<p>Thoughts for improving 'our' club:</p>									
<p><i>Dues are \$15/year for regular membership. Additional family members are free.</i></p>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Annual Dues:</td> <td style="text-align: right;">\$15.00</td> </tr> <tr> <td>Donation:</td> <td style="text-align: right;">\$ ____ .00</td> </tr> <tr> <td>Total:</td> <td style="text-align: right;">\$ ____ .00</td> </tr> </table>		Annual Dues:	\$15.00	Donation:	\$ ____ .00	Total:	\$ ____ .00
Annual Dues:	\$15.00								
Donation:	\$ ____ .00								
Total:	\$ ____ .00								
<p>Received by: _____</p>		<p>Date: ___ / ___ / ___</p>							

Meeting Location:

Meetings are held at the
Feeding Hills Congregational Church
21 North Westfield Street
Feeding Hills, MA 01030.

*Parking is in back of the church.
Access is HP accessible.*

Holy Cow—Renew Now!!!

October is renewal time for HCRA. Fill out the application on the back of this page and bring it with you to tonight's meeting.



Everyone current as of the October meeting will be entered in a drawing for this Tom Tom GPS!

**Next Meeting:
Friday Night
October 3rd, 2008 — 7:30 PM**

**Antennas
Made
Simple
By
Jim —W1EQO**



The Hampden County Radio Association
P.O Box 562
Agawam, MA 01001



PLEASE HAND CANCEL