

The QUARAE



FBI'S "INFRAGARD" PROGRAM COURTS AMATEUR RADIO AS ALLY

Amateur Radio's value as one component in a cooperative effort to protect critical national infrastructure was the focus of an InfraGard "Communications Interoperability and Ham Radios" summit this week in New York City. An FBI program, InfraGard is dedicated to promoting dialogue between the private sector and the federal investigative agency "concerning critical infrastructure protection issues." ARRL Chief Development Officer Mary Hobart K1MMH, and Affiliated Clubs/Mentor Program Manager Norm Fusaro, W3IZ, represented League Headquarters at the gathering, which featured a range of speakers. "This is the key to opening the door to a valuable model partnership," Hobart commented afterward. "They were very receptive. I think it was a good beginning."

Hobart says Amateur Radio came up on InfraGard's radar earlier this year and got the nonprofit organization thinking of Amateur Radio as a possible partner, ally and service provider in emergencies. New York Metro InfraGard put together the one-day session July 17 at Cisco Systems' New York office as a way to get more familiar with Amateur Radio. "They understand that ham radio has 'been there' in terms of emergencies and disasters and is working to improve its ability to respond," Hobart said. She said New York Metro InfraGard President Joe Concannon "expressed his deep interest in Amateur Radio as a partner and a desire to learn more about our capabilities." Keynote speaker for the day-long session was Broadcasting & Cable Hall of Famer and New York Public Television CEO William Baker, W1BKR. Jeff Pulver, WA2BOT, chairman and founder of pulvermedia.com and cofounder of Vonage, also addressed the gathering. "This InfraGard meeting brought together a group of people who care about post-disaster communication preparedness, and a majority of the people in attendance were active members of the Amateur Radio community," Pulver observed later in a blog entry. "This was my first time in the post-VoIP era that I had a chance to talk to hams about my early experiences with VoIP and how my ham radio background has had a positive effect on the past 12 years of my life."

Continued on Page 7

**Radio Association of Erie Club meeting this Thursday
at 7 pm at the RAE Club House on Wagner Road.
Hope to See You There!**

Volume 5, Issue 8

August 2006

Club Repeaters

- Erie
146.610–
PL 186.2
- Waterford
146.820–
PL 186.2

Club Website:

www.raerie.org

Inside this issue:

<i>Public Service</i>	2
<i>Minutes</i>	3
<i>Contests</i>	4
<i>Erie County Public Safety Team Demo</i>	4
<i>Antennas by W2FD</i>	5-6
<i>Ham Radio and Birds</i>	7

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Calendar of Events

Thurs. - August 3rd— General Membership Meeting

Time: 7 pm

**Location: RAE Clubhouse on Wagner RD.
which is off of Bargain RD off RT 99 in McKean**

Tues. - August 22nd—Board of Directors Meeting

Time: 7 pm

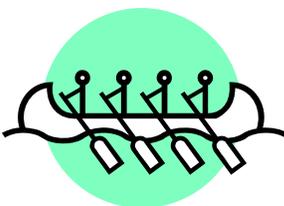
**Location: RAE Clubhouse on Wagner RD.
which is off of Bargain RD off RT 99 in McKean**

Public Service News



**The next RAE Public Service Events
will be:**

**Paddle Erie on
Saturday August 26th at
Presque Isle State Park.**



**To sign up please contact Doug AD4UL at 453-2915
Or via e-mail at ad4ul@arrl.net**

**If you planning on coming to this event,
if possible be sure to bring at HT and
a pair of binoculars.**

Upcoming Public Service Events

Sept 9th—Caring Place Triathlon at Presque Isle
Late September— MS Bike Ride

Meeting Minutes

Radio Association of Erie
General Membership Meeting
July 6th, 2006

The meeting was called to order by KE3V at 7:04 pm.

Board Members Present: KE3V, N3NKV, N3LBI,
WB3DOM

Board Members Not Present: N3ZNP, KD3D,
KC2HVX, KB3JSN, K3LD,

New Calls: None

Guests: None

Silent Keys: K7YFD Merle Ann Young

Secretary's Report: N3NKV requested a motion to accept the minutes of the June meeting as printed in the QUARAE. Motion to accept as printed made by N3LBI. Seconded by KB3NAT.

Treasurer's Report: N3NKV provided the treasurer's report that was provided at the last board meeting.

Board of Director's Meeting: N3LBI gave an overview of the meeting. Topics discussed included: outstanding bills, update on Capital Funds, Fundraising, need for 2 new trustees for Capital Funds, New Member Recruitment, Elections Committee needs to start forming, Membership Directories, Club Policies and Bylaws, and Clubhouse Safety.

Membership: KE3V reported that there are presently 114 members.

Repeater: N3NKV reported that 61 is having problems decoding touch tones of some radios. The power supply for charging the batteries at 82 has not been built yet.

RACES: WX3E mentioned that the Erie County Public Safety Coalition will be holding a demonstration at the Public Safety Garage on East Lake Road in the Uniflow Complex on Saturday August 12th from 9am until 12 noon. Some of the groups present will include

Sheriff's Scuba, Sheriff's Land Search and Rescue.

Skywarn: Nothing.

QUARAE: N3NKV mention that he needed articles for the newsletter. He also asked if any who is not getting the QUARAE to please let him know.

Website: N3NKV reported that KC2HVX is in the process of transferring the domain name ownership.

Public Service: AD4UL made a motion that the club provide communications for the March of Dimes Paddle Erie event on August 26th at Presque Isle. Seconded by N3LBI. Motion Carried.

Old Business:

N3RKO Plaque: N3LBI mentioned that it has not been made as of present.

New Business:

A group discussion took place about how the city is enforcing their tower ordinances. Three hams who reside within the City of Erie have been cited for Illegal Towers.

Bylaws: N3LBI reported that a committee has been formed to review the bylaws. N3NKV, N3ZNP, KC2HVX will be meeting in mid July to start revising the bylaws. N3LBI asked if any members would be interested in being part of this committee.

WX3E reported that the Northwest PA hamfest would be Saturday July 8th at the Greene Township Municipal Building on Tate Road.

50/50 Winner: Rich WA1YJZ \$11.50

Motion to Adjourn made by WB3DOM. Seconded by KB3JZL.

Meeting Adjourned at 7:51 PM

Respectfully Submitted,

John Lis

Radio Association of Erie Secretary

Contest Calendar

The RAE will be Participating in these upcoming contests:



August 5 & 6 - National Lighthouse Weekend
August 19 & 20 - International Lighthouse Weekend



August 12 & 13 - Maryland/DC QSO Party @ RAE Clubhouse

Erie County Public Safety Team Demonstration

The first annual Erie County Public Safety Teams Equipment Demonstration will be taking place on Saturday August 12th from 9 am until 12 noon at the Former IP Truck Garage located at 1635 East Lake Road in Erie. It is located on the east side of the Uniflow Building. It will be a way to meet with member of these organizations:



Erie County Sheriffs Mounted Posse



Erie County Haz Mat



Erie County RACES



Erie County Sheriff's Dive Team



Erie County Sheriff's Land Search and Rescue

Northwest Technical Rescue Team

Antennas by Jerry W2FD

The Dipole

The dipole antenna gets its name from the electrostatic configuration of two equal and opposite point charges Q and $-Q$ separated a short distance apart. If the two point charges oscillate in time and the charge is provided by an RF current between them, the dipole would radiate electromagnetic energy. The current at the endpoints of the radiator are non-zero and a capacitance is required between the ends of the arms and space to collect the charge. A short dipole can be constructed with large disks to provide the capacitance end loading; however, the radiation resistance of a very short dipole is low and the impedance seen at the center feed point is highly capacitive reactive making it difficult to impedance match.

Finite Length Dipoles

A center-fed dipole or a variation of the dipole is the most widely used amateur antenna in the low HF bands where the wavelength is long and thin-wire antennas are relatively easy to construct and feed. The dipole is a good “element” to use for a single antenna or for antenna arrays because the radiation patterns and the impedances for the elements of the array can be calculated fairly easily with the use of digital computers. If a sinusoidal form is chosen for the shape of the current on a very thin dipole with the wavelength of the current distribution equal to the “free space” wavelength, then the fields for the dipole can be calculated exactly for all regions of space surrounding the dipole and the result can be expressed in a simple form. An accurate description of the fields around the dipole is particularly important when arrays of dipoles are used in a configuration such as a Yagi and the interaction of the dipole fields is needed to determine the proper lengths of the dipole elements and input impedance at the driven element.

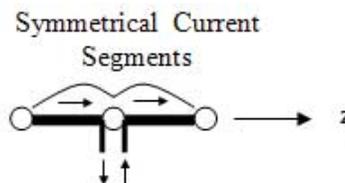


Figure 1. Dipole

The currents on a thin-wire center-fed dipole are generally assumed to be balanced or symmetrical about the center of the dipole and of a spatially sinusoidal form with the current vanishing at the end points on each arm of the dipole as shown in Figure 1. The distribution of current is shown in Figure 2 for each arm up to a length of 0.75 wavelengths or a total dipole length of 1.5 wavelengths. The assumption of sinusoidal currents is found in practice to be very good for thin dipoles except when the total dipole length is near one wavelength long. The current at the input feed point for a one-wavelength dipole is low but does not vanish, as would be the case for a purely sinusoidal current.

Sinusoidal Dipole Arm Current

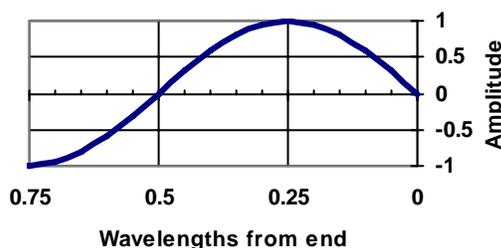


Figure 2. Sinusoidal Dipole Current

The fields from a dipole antenna are generally considered to arise from the current segments on the dipole arms and may be calculated from these currents only. The fields from a very thin dipole may be equally well described from three “equivalent” point sources located at the center and end points of the arms as shown in Figure 1.

Antennas by W2FD continued

The end sources have the same amplitude and are in-phase but the center source has an amplitude which depends on the length of the dipole. The sources are not necessarily “real” in the sense of physical currents or charges but do give the same exact result as obtained from the currents.

Consider the configuration of the dipole with the sources as seen in Figure 1. The relative amplitudes of the sources are shown plotted versus the total antenna length in Figure 3. In the special case, when the dipole is 0.5 (or 1.5) wavelengths long, the source in the center disappears and the fields and field pattern may be obtained from equal in-phase sources at the end points only. The results for a half-wave dipole will now be discussed because it is a much simpler case.

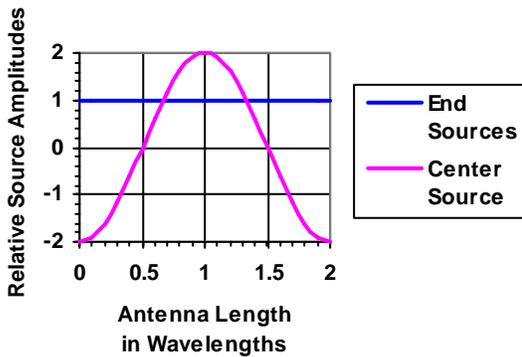


Figure 3. Relative Source Amplitudes

Half-Wavelength Dipole

If we investigate the component of the electric field, E_z , which is everywhere parallel to the dipole axis (z-axis), each source contribution to E_z can be represented by a spherical wave where the propagation phase is proportional to distance (phase = $k R$) from the source point and the amplitude varies inversely proportional to the distance R from that source point. Thus, knowing

the distance from each of the source points, the total z-directed electric field can be calculated everywhere.

The far-field contributions from the two sources of the half wave dipole add in phase in a plane perpendicular to the axis of the dipole arms (broadside to the dipole) and cancel at a point in the direction of the dipole axis (off the ends of the dipole) where the difference in propagation phase between the two sources is 180 degrees and the amplitudes are the same in the far field. Thus, the half-wave dipole has a null in the z-directed far field along the axis. The same can be said for any length dipole where the combination of three sources always produces a null in the z-directed far field along the axis.

In the far field of the antenna, the polarization direction of the total electric field lies on the surface of a sphere and points in a direction along a great circle from one pole to the other as shown in Figure 4. This is true for any great circle in a plane passing through the axis of the dipole. The resultant field is said to be “theta” polarized where theta is the zenith angle measured from the z-axis. The only difference between the magnitudes of the “theta” directed electric field and the “z” directed electric field is a factor **sin (theta)**. Or stating it mathematically, $E_{\text{theta}} = E_z / \sin(\text{theta})$. Since theta is 0 or 180 degrees along the axis, one might expect that the “theta” directed field would get very large in the direction along the axis since $\sin(0) = \sin(180) = 0$, but in fact, the combination of sources just discussed makes the total far field in the axial direction always vanish. There is no far field radiation in a direction off the ends of a symmetrical dipole!

Figure 4. Spherical Coordinate System

Free-Space Dipole Patterns—Next Month

Ham Radio And Birds!

After a one-year hiatus, ham operators are again being asked to help wildlife researchers by listening for radio tag signals from migrating birds. Two projects are about to start:

1. A non-profit organization in New Mexico wants to find the wintering grounds of the Burrowing Owls that spend summer months in the grasslands of Kirtland Air Force Base. Twenty-eight of the birds have been fitted with pulsing radio-tags near 172 MHz and attempts will be made to track them by aircraft to see if they go east toward Texas, west to California, or south to Mexico. It's likely that aircraft will lose contact with most of the owls, so volunteers throughout southwestern states and northern Mexico are needed to listen for them. They will start moving any day now.



2. Researchers at two Toronto universities will soon be radiotagging twenty young Purple Martins at a breeding colony in Edinboro, Pennsylvania. These beautiful birds are expected to start flying south in mid-August, probably to winter grounds in South America. Listeners in southern states from Texas through Florida are asked to monitor and possibly detect the flyovers.

If you live in the target areas and can receive 172 MHz signals, you could help. If you have radio-direction finding equipment for VHF, so much the better. The [Homing In Web site](http://www.homingin.com) (www.homingin.com) has more information on these projects, including frequencies and suggestions for equipment and antennas. It includes a page that describes the unique characteristics of wildlife tags to help listeners distinguish them from other signals they may encounter at 172 MHz

Thanks in advance for your help!
Joe Moell KOOV

FBI continued from Page 1

Pulver said the InfraGard meeting provided “a great audience to speak to, since we shared a common passion for communications and common ground on a number of topics.” He said that includes the need for coordination between the ham radio community and fellow communication enthusiasts “who want to volunteer their time the next time disaster strikes.” In a presentation called “Radio Communications 101,” New York City District Emergency Coordinator Mike Lisenco, N2YBB, spoke about the Amateur Radio Emergency Service (ARES) and the League’s role in emergency and public service communication and training.

Allan Manuel, an attorney in the FCC Public Safety and Homeland Security Branch, indicated the Commission is willing to be more flexible in accommodating Amateur Radio during emergencies and disasters. The FCC wants to hear from the public by August 7 in response to an FCC Notice of Proposed Rule Making (NPRM) regarding recommendations of the independent panel that reviewed Hurricane Katrina’s impact on communication systems (EB Docket 06-119). Some of the wide-ranging proposals in the NPRM include possibly amending the rules to permit automatic grants of certain types of waivers or special temporary authority (STA) in declared disaster areas.

Continued on Page 8

Radio Association of Erie

P.O. Box 844

Erie, Pa 16512

FBI continued from Page 7

For their part, Hobart and Fusaro demonstrated the League's "Ham Aid" go kits of Amateur Radio gear that can be rapidly deployed to disaster areas where the Amateur Radio infrastructure has been lost or compromised. They also provided attendees with copies of the ARRL's Community Education Program brochures and materials. Hobart says Concannon envisions a model in New York City that other InfraGard chapters across the country could emulate. "I think it's an opportunity for Amateur Radio to align itself with a high-profile group with key federal connections," she said.

Become a Member of the RAE ListServ

Anyone can join, you do not need to be a member. We discuss Amateur Radio related items, club activities, etc.

To join, send an e-mail to: jjlis@adelphia.net, with the body of your message containing the following:
'subscribe raerie first-name last-name'.

