

The QUARAE

Erie County RACES team presents in Harrisburg

HARRISBURG- Members of Erie County's RACES leadership team attended the first annual RACES conference here on September 30th. Led by RACES Emergency Coordinator Dave Wellman, WX3E, the team participated in an informative workshop intended to bring RACES members from all of Pennsylvania's 67 counties together at the headquarters of the Pennsylvania Emergency Management Agency.



Wellman was asked by Chris Snyder, NG3F, PEMA Emergency Management Specialist and the conference host, to provide a presentation entitled, "How to Organize a Successful RACES team". Assisted by Steve LaJohn, N3SRD and Deputy Emergency Coordinator for Erie County, Wellman skillfully described the remarkable efforts of the Amateur Radio community in Erie County to prepare and train for a communications emergency. "Our greatest assets are our operators", Wellman was quoted as saying. "It's clear by the high level of participation and interest in emergency communications by Erie County hams that they're eager to learn about and prepare for the time we're needed. And so many experienced operators are willing to share their experience and expertise with the group".

Accompanying Wellman's presentation was a smart-looking and informative PowerPoint show, developed by LaJohn. Mercyhurst's Public Safety Institute provided funds for travel expenses, and PEMA arranged lodging for the team. Thanks to PSI for your assistance to Amateur Radio!

**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 11

November 2006

Club Repeaters

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

Club Website:

www.raerie.org

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Officers and Contacts — 2006

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Bill Marshall, KB3JSN
Dianne Miller, K3LD
Ron Seyboldt, WB3DOM

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Clubhouse & Repeater

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Steve Lajohn, N3SRD
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Calendar of Events



Thurs. - November 2nd— General Membership Meeting

Time: 7 pm

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

Tues. - November 28th—Board of Directors Meeting

Time: 7 pm

Location: Red Cross 4961 Pittsburgh Ave, off of West Grandview Blvd.

RAE 2007 ELECTIONS

Elections for 2007 will take place at the November Meeting:

Nominees:

President: Kevin McKenna KE3V

Vice President: Neil Shea N3ZNP

Secretary: John Lis N3NKV

Treasurer: Frank Graziano KD3D

Board of Directors:

Vote for 2

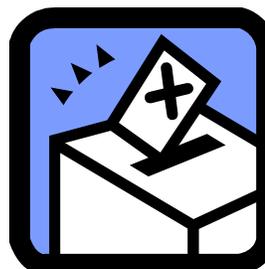
3 Year Term

Matt Fuller KB3CAT

Frank Henry KB3NAT

Jeremy Lobaugh KB3BAM

Gerry Otteni W2FD



Meeting Minutes

Radio Association of Erie
General Membership Meeting
October 5, 2006

The meeting was called to order at 7:02 pm by president KE3V.

Board Members Present: KE3V, N3NKV, N3LBI, WB3DOM

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

Upgrades: None

Guests: WB3CNJ

Secretary's Report: WB3DOM made a motion to accept the minutes of the September 2006 general membership meeting as printed in the QUARAE. Seconded by AD4UL. Motion Carried.

Treasurer's Report: N3NKV read the treasurer's report from the last board meeting.

Board of Director Report: N3LBI provided an overview of the last board meeting. Topics discussed included: Status of Website domain change, Repeater updates and problems during recent inversion, Contesting, Classes: Tower Status, Elections, ARES/RACES SET, Fire Extinguishers for clubhouse

AD4UL asked about the status of the dividends of the capital funds and have they been used this year. N3LBI mentioned that they have not been touched this year.

Committee Reports:

QUARAE: N3NKV reported that he needs articles for the QUARAE.

Website: N3NKV reported that he is in the process of getting the domain ownership transferred presently.

Public Service: AD4UL reported that the last public service event of the year took place on Sat Sept. 30 and Sun. Oct. 1st. It was the MS Bike Ride from Erie to

Dunkirk.

Contesting: AD4UL mentioned that the club station would be up and running for the PA QSO Party. N3LBI mentioned that he is working on trying to get someone activity going for JOTA.

RACES-N3SRD reported that WX3E, KB3JSN, and himself attended a workshop at PEMA Headquarters. They were asked to present a program about the Erie County ARES/RACES Program.

Skywarn: Nothing

Repeater: N3SRD reported the 444.875 repeater was sold to and picked up by WB3IGK tonight. A 13 element beam is now up on the tower to improve the link between 61 and the linking hub at Union City.

Packet: N3BXL reported that the ERI digipeater now has a new home at the Erie County EMA office on 18th and French.

Old Business:

Club Directories: KA3CPV asked about status of new club directories. N3NKV mentioned that they will probably not get printed until April - May 2007. He wants to update the information.

New Business:

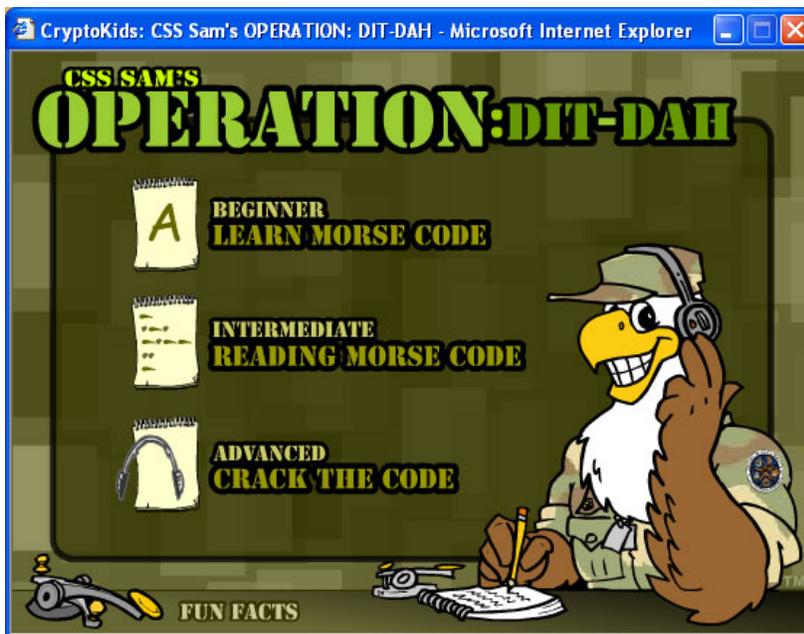
QCWA Chapter: WB3CNJ mentioned that she is in the process of reactivating the local QCWA chapter.

Club Council: WB3CNJ mentioned that she has talked with various radio clubs throughout the county about forming a club council. It would involve 3 people from each club. The start up costs would be \$50-\$75 dollars and then fundraising. The function of club councils is to share information and resources between clubs. After a lengthy discussion, NI3Q made a motion that the Board of Directors invite WB3CNJ to present her proposal more in depth at a board meeting. Then, the Board will make a recommendation to the membership. Seconded by WB3DOM. Motion carried.

Continued on Page 4

Do You have a Child That Wants to Learn the Code?

The NSA has set up a web site to teach kids codes and ciphers via games and puzzles. Morse code figures prominently on the site. Very interesting!



Online at : <http://www.nsa.gov/kids/home.cfm>

Minutes continued

Elections: N3LBI mentioned the following are nominations for Officers for 2007:

President: Kevin McKenna KE3V;

Vice President: Neil Shea N3ZNP;

Secretary: John Lis N3NKV;

Treasurer: Frank Graziano KD3D

Board of Directors:

Two Positions are open with a 3 Year Term

Matt Fuller KB3CAT, Frank Henry KB3NAT

Jeremy Lobaugh KB3BAM, Gerry Otteni W2FD

N3LBI mentioned that KD3D has been treasurer for three years. He cannot run again per the bylaws without the approval of the membership. N3LBI made a motion that KD3D be nominated treasurer for a 1 year term for the office of treasurer in the Radio Association

of Erie. Seconded by WB3DOM. Motion Carried.

QSL Card Holders: N3SRD made a motion that the club purchase QSL card holders at a cost not to exceed \$40.00 Seconded by N3BXL. Motion Carried.

50/50: \$13.00 – Winner N3BXL and \$12 Donation to Club

Motion to adjourn made by N3LBI and Seconded by K3GJK at 8:10 pm.

Respectfully Submitted,

John Lis
Radio Association of Erie Secretary

Antennas by W2FD

Free-Space Dipole Patterns

Plots of the E-plane power density patterns (normalized to each peak) of center-fed dipoles are shown in Figure 5 where Psi (90–theta) is measured from the broadside direction of the dipole. All patterns are symmetrical about the broadside direction. Note that the widths of the main beam dipole patterns decrease with increasing dipole length. For lengths of the dipole greater than a wavelength, the patterns split with sidelobes being introduced. Plots of the 3-dB beamwidths and gain (or directivity) are shown in Figure 6 where the maximum gain for the dipole occurs at 1.25 wavelengths.

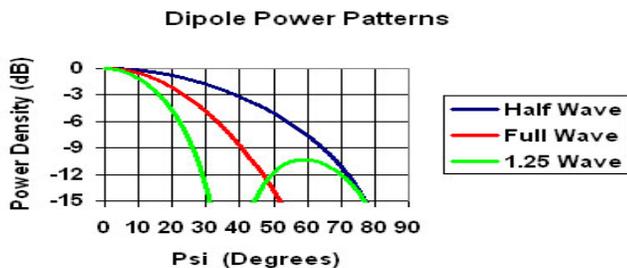


Figure 5. Dipole Power Patterns

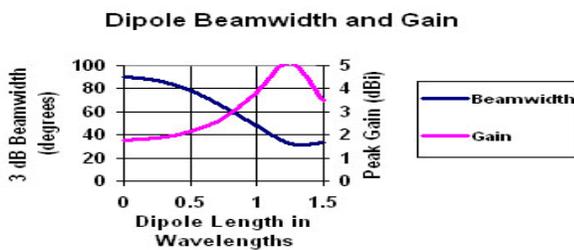


Figure 6. Dipole Beamwidth and Gain

The main beam peak of the dipole does not occur in a broadside direction when the dipole length is more than about 1.45 wavelengths and tends to appear closer to the axis of the dipole. For a 1.5 wavelength dipole, the radiation is a maximum at an angle of nearly 45 degrees from the axis of the dipole with a secondary lobe approximately 3 dB down near broadside. Patterns for the center-fed dipole of various lengths may be found in such publications as the ARRL Antenna Book in the chapter on Antenna Fundamentals.

Dipole Impedances

The feedpoint impedance of a thin half-wave dipole with symmetrical sinusoidal current in free space is generally accepted to have a resistive value of 73 ohms and an inductive reactive value of 42.5 ohms. The input impedance may be made purely real by shortening the dipole length slightly to somewhat less than $\frac{1}{2}$ wavelength without changing the real part of the impedance or the radiation pattern greatly. When a dipole is placed over ground, the impedance may vary quite widely depending on the height of the antenna above ground in terms of wavelengths.

Ideally, the dipole should be fed to maintain a symmetrical antenna current with a balanced feedline and a balanced-line to coax transformer or antenna tuner. Use of a low-loss balanced feed line is particularly important to feed a dipole when the dipole is to be operated over a wide range of frequencies and a tuner must be used to match the impedance to a transmitter. For narrower band use, the dipole may be fed with coax and a “balun” or “choke” at the dipole feed point to insure that the currents on the dipole are balanced and do not radiate from the coax. Many amateurs use a coax feed directly and it has been shown that such a feed does not greatly distort the dipole patterns at lower HF frequencies. (See ARRL Antenna Book, “Coupling the Line to the Antenna” for a discussion of feeds and baluns).

When the dipole is near one wavelength in length, the resistive part of the input impedance is quite high—on the order of thousands of ohms and the reactive part varies quite rapidly with frequency making it difficult to impedance match to a transmission line.

If you want to get the maximum gain from the dipole, it can be designed for 1.25 wavelengths long. The input resistance tends to be on the order of 100 ohms but the reactance is capacitive and on the order of a few hundred ohms which would normally require an impedance matching network or tuner.

ANTENNAS continued by W2FD

A dipole, which is near 1.5 wavelengths long, has an input impedance which does not differ greatly from that of the half-wavelength dipole and allows one to operate a half-wave dipole near 3 times the design frequency without a lot of impedance matching although the pattern splits as was discussed previously.

Dipoles over Ground

The effects of the earth and objects near an antenna may cause impedance changes and reflections from the ground play an important role in antenna patterns. Antenna patterns are greatly dependent on the orientation and height of the antenna above ground because antennas such as the dipole do not have very narrow beamwidth patterns. The dipole normally illuminates the ground as well as the direction in space of the desired radiation and the resultant patterns depend on the direct radiation from the dipole and the radiated energy directed toward the ground, which is reflected back into space. The resultant far field patterns for antennas above flat ground are normally calculated by the method of Geometrical Optics, a method of adding the direct and reflected components of the fields considering the component amplitudes and phases as if these components were plane waves. In this regard, the reflection of a plane wave from a flat surface has the property that the angle of incidence is equal to the angle of reflection.

The magnitude and phase of the reflected plane wave depend on the magnitude and phase of the wave incident from the antenna at the ground, the angle of incidence, properties of the ground and the polarization of the incident plane wave. The ratio of the reflected to incident field is called the reflection coefficient and, in general, will be different for two separate polarization conditions determined by the “plane of incidence” which is defined by the direction from the antenna to a point on the ground and the “normal” to the plane of the earth. The two separate polarizations are parallel (vertical) and perpendicular (horizontal) polarization or incidence where the electric field vector is either parallel or perpendicular to the plane of incidence. These definitions are shown in Figure 7.

It should be apparent that reflections from the ground could greatly increase the signal from an antenna (relative to that in free space) if the direct and reflected waves add in phase at a particular angle in space. A simple consideration of this effect shows that the total field strength can be twice the free space field strength or produce a power density pattern increase (gain) of approximately 6 dB when the magnitude of the direct and reflected plane waves are equal and they add in phase. Reflections from the ground also produce “nulls” in the antenna patterns when the direct and reflected waves are of equal amplitude and 180 degrees out of phase.

Patterns for both vertical and horizontal dipoles at various heights above ground are given in the *ARRL Antenna Book* chapter on the “Effects of Ground” and the *ARRL Handbook* chapter on “Antennas and Projects”. For horizontal dipoles over ground, it can generally be stated that the patterns favor high elevation angle radiation (toward the zenith) when the dipole is less than or on the order of $\frac{1}{4}$ wavelength above ground. A high angle lobe also exists when the horizontal dipole is spaced at an odd multiple of $\frac{1}{4}$ wavelength above ground. Such configurations would be appropriate for NVI (Near Vertical Incidence) communication where relatively short distances are involved. For low angle or long distance communications, spacing the dipole at a height greater than $\frac{1}{4}$ wavelength shows definite advantages.

Coming next month:
Practical Applications



KB3CAT-3 Packet Station at Saint Vincent Hospital



These are photos of the KB3CAT packet station located now at Saint Vincent Hospital. The antenna is a mag-mount on a steel plate. The transceiver for the packet station is transmitting around 10 watts.

Local Net Schedule

Erie-Ft. Pierce Connection	14.340 USB	Daily	8:00 AM
6 Meter SSB	50.190 USB	Sunday	7:00 PM
Lake Erie Emergency Net	29.000 USB	Sunday	8:00 pm
ARES/SKYWARN Net	146.610(-) FM	Sunday	9:00 PM
2 meter AM NET	144.450 AM	Monday	8:00 PM
Mailbag Net	146.700(-) FM	M-F	8:00 PM
440 Simplex Net	446.100 FM Simples	Tuesday	8:00 PM
6 Meter AM	50.520 AM	Wednesday	7:00 PM
Novice-Tech Net	28.400 USB	Wednesday	8:30 PM
2 Meter SSB	144.210 AM	Friday	8:00 PM
Flintstone RTTY Net	28.280 RTTY	Saturday	8:30 pm

Radio Association of Erie

P.O. Box 844

Erie, Pa 16512

Origin of Hi Hi

"hi hi" is the Morse equivalent of a laugh as in Morse it sounds like someone chuckling ("hehhehhehheh hehheh"). That is ditditditdit dit dit --- or dot dot dot dot dot dot. You really have to listen to it sent in Morse to appreciate its laugh like sound. It is most commonly used in CW (Morse Code), but has carried over to voice as well. Many CW expressions have carried over to voice -- such as 73 (Best Regards) and 88 (love and Kisses), etc. The origin probably dates back before radio to the telegraph days. And since Hams used Morse long before voice became practical-- the sound of the Morse characters HI HI was used to resemble a laugh sound. In some sense it is equivalent of a smiley. It's onomatopoeic -- that is the naming of a thing or action by a vocal imitation of the sound associated with it (as buzz, hiss) The definitive answer might be found in the "Dodge's The Telegraph Instructor Manual" circa 1850 to 1900. However, I have never been able to find a copy of this document. Wish I could as it would help to see the transitions from telegraph to radio usage. So that is my best guess -- based on what old time telegraphers have told me.

From AC6V Note: Another use of HI HI is sending a greeting to a fellow Ham when vehicles pass -- four short horn beeps followed by two short horn beeps. Since many Hams have Ham License plates -- a fellow Ham is easily spotted as well as the seeing the mobile antennas