



AUGUST 2007

HAMFEST CORRECTION

AGAIN?

How many times must we go through this correction thing? This is the absolute last. Our Egyptianfest made a very good profit; but not the \$884.22 that I had thought.

Your Treasurer forgot to enter a check for the food purchased on Saturday. That lowers our profit to \$544.46. That is more in line with what we have made in past years. Now, with all that effort put forth for this Egyptianfest, we must double our efforts and really get down to business. Not just one person doing it all; but every-one pitching in and working harder to make the Egyptianfest 2008 a larger and more profitable event.

The hamfest committee must be formed in January and people must be designated to do certain jobs. We need at least five members of the club to serve on this committee.

LETTERHEAD STATIONARY

An objection to our present stationary has been made with the Board of Directors. The Pharaoh Head that is presently used is not the image that is wanted. Happily I can report that an acceptable rendition of the ERC Pyramid has been found.



NET CONTROL

Are you trained in the proper operation of a net? It makes no matter whether you are operating on VHF, UHF or HF, the proper procedures are the same.

The first thing every good net control station must do is be in command of the phonetic alphabet. Most of what is acceptable on the Citizens Band is not proper Amateur Radio procedures. "10-4" and "10-20" have no place in ham radio. Exemplary "Netiquette" is essential for the Net Control Station (NCS). Every transmission by the NCS should end with the proword, "OVER".

The NCS can joke with those who check in to the net; but must maintain control of the net and be polite in the process. This is acceptable in an "OPEN NET". In an emergency situation and open net has no place. The net becomes a "DIRECTED NET" and the NCS is in complete control of the operation. He/She dictates who & what happens and who speaks. This type of net is not normally done unless the emergency situation demands it.

The Military Affiliate Radio System (MARS) operation is always a directed net. Every MARS member goes through training in station operation and the proper use of message handling techniques. Be thankful that the normal Amateur operations do not demand this procedure. WA9BRQ was in USAF MARS and saw many of his fellow hams cancelled from membership in the program because they could not change their methods of operation.

We, in the Egyptian Radio Club, want to encourage proper operation of every member in the club. We encourage you to learn the phonetic alphabet and use it in daily operations of your station. When emergencies happen, you will be prepared to handle the situation.

--

FLY-IN AT ST. LOUIS REGIONAL

On September 29, 2007 a number of old military aircraft will be on display at the St. Louis Regional Airport at Bethalto, IL. Nolan Zobrist, KA9VKC; Marsha Wilson, KC9KTS; Frank Shears, K7RMJ; Mark Wilson, KC9IIX and a number of other Egyptian Radio Club members will be presenting a ham radio demonstration as it was done during WW2 and as it is today.



The ERC will be handing out bottled water to those who need a good cold drink on what may be a very hot day. Frank will be demonstrating Morse Code and I am sure attracting a number of on-lookers. What a wonderful way to demonstrate ham radio. Frank can do slow speed CW and very high speed CW; many people will want to watch that.

The Armed Forces Museum in Alton will be conducting two drawings with the proceeds to be used to support their facilities at #2 Cut Street in Alton. Tickets will be \$5.00 per ticket for each drawing.

This event will attract many people to the airport. Club members are encouraged to attend and may help with the club sponsored display of ham radio at the event. The group will setup what they can on Friday September 28. Contact Marsha or Nolan to advise your intentions to help.

C W

Continuous Wave, is what CW stands for. Samuel F. B. Morse is credited with the invention of the Morse Code. Since CW has been eliminated from requirements for Ham Radio, it seems that more folks want to learn what we no longer need; to become a Ham.

Now, with that said; K7RMJ will be starting a slow speed code net on VHF. Straight CW can be sent on any radio frequency; but if this net is to be conducted on the 146.7900MHz repeater it will have to be audible code rather than true CW. True CW would simply not work on the repeater. True CW needs to turn the transmitter on and off. To do that you need to be using simplex operation.

I believe Radio Shack is still selling a Morse Code practice key, with built-in oscillator for this purpose; but you will have to hold your microphone next to the oscillator in order to transmit any CW signal. This is acceptable; but not the most desirable method of transmitting.

The better way is to use simplex frequencies and send code the old-fashioned way by keying the transmitter on and off. Some VHF rigs have this capability and others do not. Anyway, we are a few months away from two-way CW on a repeater. Many members want to learn and the first sessions of this endeavor will be devoted to Frank sending the letters at slow speed to help all participants learn the code.



RF GUIDE

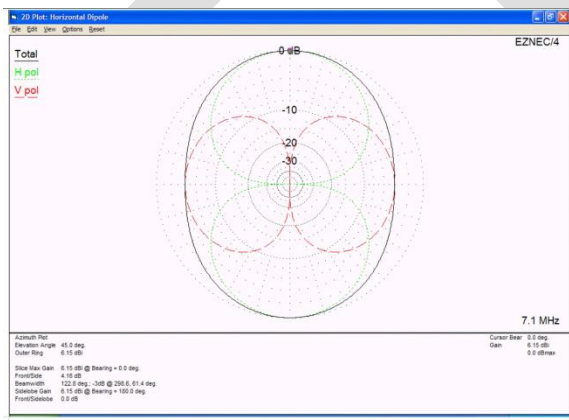
Ground Systems for Balanced Dipoles

Grant W. Bingeman, P.E.

Buried radial ground systems are traditional for vertical monopoles, but they are not ordinarily installed beneath horizontal dipoles. However, when a dipole is operating close to earth, the ground losses can be significant.

MODELING A DIPOLE

Consider a 71-foot-long dipole, 20 feet above ground, trimmed for 50 Ohms center resistance. Operating at 7.1 MHz in the 40 meter amateur radio band, the input impedance over perfect earth is $50.1 + j125$ ohms. (No sag is assumed in the 10 AWG copper wire span.)



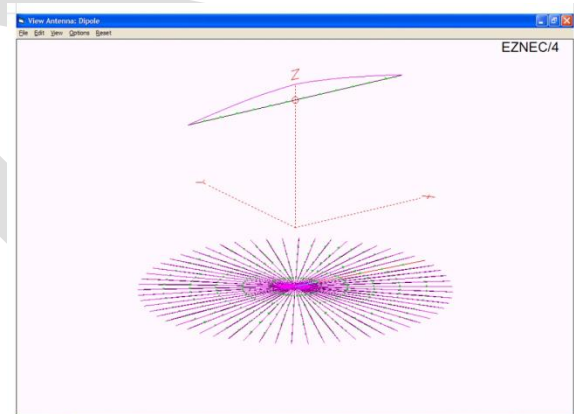
The radiation pattern at an elevation angle of 45 degrees (shown in Figure 1) is typical. The vertically polarized E field is greatest off the ends of the dipole and the horizontally polarized field is greatest broadside. Sharp nulls appear

orthogonally to the maxima. The maximum 45 degree sky-wave electric field is 218 mV/m (6.2 dBi) at one mile bearing North.

If we change the earth conductivity to 5 mS/m, a dielectric constant of 13, the input impedance becomes $72.3 + j110$ Ohms. The maximum 45 degree sky-wave electric field is 173 mV/m (4.1 dBi) at a mile bearing North. This is a 2.1 dB loss compared to the perfect case.

What would be the effect of adding 60 radial copper wires buried a few inches below the earth, each 32 feet long (as in Figure 2)? Will this ground system reduce losses?

With the ground system, the input impedance becomes $62.6 + j117$ Ohms, and the maximum sky-wave field at one mile is 188 mV/m. This is a 0.7 dB improvement; not a lot, but significant.



20 METER BAND

Consider a 26.4-foot-long horizontal dipole, 20 feet above ground, trimmed for 50 Ohms center input resistance. Operating at 14.2 MHz in the 20 meter amateur radio band, the input impedance over perfect earth is $49.6 - j292$

Ohms, substantially different from the 40 meter band case.

The radiation pattern at an elevation angle of 45 degrees is the same shape as Figure 1, but a bit larger. The maximum 45 degree sky-wave electric field is 227 mV/m (6.5 dBi) at one mile bearing North. This slight increase compared to the previous case is caused by the fact that electrically the dipole is twice as high off the ground.

If we change earth conductivity to 5 mS/m (dielectric constant 13), the input impedance becomes 45.3 - j297 Ohms. The maximum 45 degree sky-wave electric field is 203 mV/m at a mile bearing North. This is a 1.0 dB loss compared to the perfect case.

Can we reduce losses by adding 60 radial copper wires buried a few inches below the earth, each 16 feet long per Figure 2? The input impedance becomes 46.3 - j295 ohms, and the maximum sky-wave field at one mile is 207 mV/m. This is only a slight improvement compared to the case without a buried ground system.

CLOSER TO EARTH

But what happens if the dipole is only ten feet (52 degrees) off the ground, electrically the same as the 40 meter band example? Will 14.2 MHz losses be greater than the 20-foot high case?

Over perfect ground the input impedance is 21.8 - j283 Ohms. The 45 degree elevation electric field bearing North is 215 mV/m (6.0 dBi) at a mile. This is our new reference value.

Over 5 mS/m earth the input impedance becomes 32.8 - j291 Ohms, and the sky-wave field is only 160 mV/m at a mile. This is a loss of 2.6 dB, quite a lot. If we add 60 radials beneath this dipole, the input impedance becomes 27.9 - j287 Ohms, and the sky-wave field is 177 mV/m at a mile, a 0.9 dB improvement.

SUMMARY

As expected the closer spacing between the dipole and its image below ground invokes greater currents and losses.

A ground system may not be attractive from a performance standpoint unless the installation height is limited by neighborhood covenants, etc. Of course it becomes more of an issue at lower frequencies.

If your site is blessed with high conductivity earth, or you can erect your antennas high off the ground, then earth losses and other proximity effects are minimal. Otherwise you might want to consider adding a radial ground system beneath your *not* free-space antennas.

Grant Bingeman is a design engineer, well-known in the broadcast industry for his work at Gates/Harris, Rockwell/Collins, and Continental Electronics. His email is GrantBingeman@cs.com

-30-

The above article is reprinted with the very kind permission of Ray Topp, the Publisher of Radio Guide. Check out their website at www.radio-guide.com and read the latest issue of Radio Guide.

EGYPTIANFEST 2008

The Officers and Board of Directors of our club approved going ahead for another Hamfest for our club. Egyptianfest 2008 will be held on 8 June 2008 at the SouthWestern Illinois College in Granite City. A hamfest committee has yet to be appointed.

FIELD DAY 2008

The Officers and Board of Directors of the ERC have approved of our participation in Field Day 2008. A location has not been selected as of this writing. Everyone who participated at the Field Day 2007 held at the SouthWestern Illinois College in Granite City had a great time and the security staff made a few extra accommodations for us. Most likely we will hold Field Day 2008 at the same location.



The antennas at G3MEH. What a Field Day

ICAO ALPHABET

| | | |
|---|----------------------|--|
| 0 | Zee -row | The syllable in bold is to be emphasized when spoken. |
| 1 | Wun | |
| 2 | Too | |
| 3 | Thuh -ree | |
| 4 | Fo -wer | |
| 5 | Fi -fah | |
| 6 | Sicks | |
| 7 | Sev -ven | |
| 8 | Ate | |
| 9 | Ni -ner | |
| A | Al -fah | |
| B | Bra -voh | LEARN IT, USE IT |
| C | Char -lee | |
| D | Dell -tah | |
| E | Eck -oh | |
| F | Fox -trot | |
| G | Golf | |
| H | Ho -tel | |
| I | In -de-ah | |
| J | Joo -lee-et | |
| K | Kee -loh | |
| L | Lee -mah | |
| M | Mike | |
| N | No -vem-ber | LEARN IT, USE IT |
| O | Oss -kah | |
| P | Pa -pa | |
| Q | Kee -beck | |
| R | Row -me-oh | |
| S | See -air-rah | |
| T | Tan -go | |
| U | Yoo -nee-form | |
| V | Vick -tah | |
| W | Wis -kee | |
| X | Ecks -ray | |
| Y | Yan -kee | |
| Z | Zoo -loo | |

This alphabet is recognized by the International Civil Aviation Organization (ICAO) and the ARRL.

FIELD DAY 2007 RESULTS

Jesse Johnson compiled the activity of the Egyptian Radio Club and sent them to the ARRL for inclusion in their Field Day report in QST. There were 12 participants in our Field Day operation at SWIC in Granite City. Our station was operated in class 2A with battery power and a generator to keep them charged. That gave us a 2X power multiplier.

The Bonus Points that Jesse reported were:

| | |
|-----------------------------------|-------------|
| 100% Emergency power..... | 200 |
| Media Publicity..... | 150 |
| Set-up in a Public Place..... | 100 |
| Results submitted by Web..... | 50 |
| Total Bonus Points..... | 450 |
| Total Contact Points..... | 674 |
| Total Field Day Score..... | 1124 |

All in all, the Egyptian Radio Club had a great time at Field Day. We may not make the top honors in QST; but that is not the reason for Field Day. The contest part is only secondary; the real reason is to show your emergency preparedness. We did that with flying colors.



PYRAMID FOUND



After a lot of searching your faithful and overworked scribe has finally located the above image. This is a JPG file and can be used for a revised Egyptian Radio Club letterhead and can be scaled and reproduced for many other projects.

Marty Schultz, N9PPJ, an overworked repeater committee member, displayed a laser cut image on a plastic nameplate done at a local shop in Edwardsville. This image could be used on the new club member nameplates.

NEW CLUB MEMBERS

I have been remiss in listing new club members that have joined the ERC this year. The Egyptian Radio Club wants to welcome: Bud Hurt, N9PTO back into the flock Marsha Wilson, KC9KTS, new member Frank Shears, N7RMJ, new member Pat Walkup, KC0ZIW, new member.

If I have overlooked someone, please forgive me. I do not have all membership applications on file. I am working on bring that up-to-date. The official membership files were incomplete when I took over as Secretary-Treasurer.