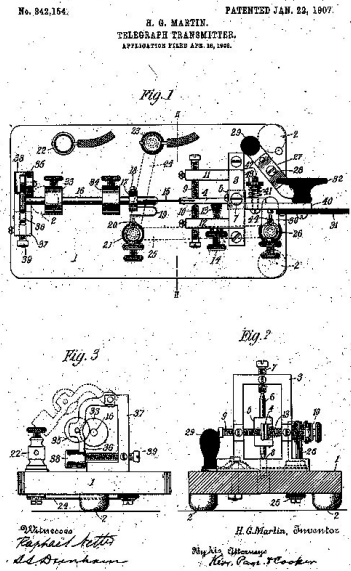


(Bitten by the Bug continued from page 10.)



As our conversation progresses, his dot-to-dash ratio varies all over the map, but I slowly get used his style of CW. It's like listening to British shows on PBS. At first, they're totally unintelligible, but over time, your brain figures it out.

I have to give him credit, he's using something that is a passing skill. I have a bug I bought years ago, but could never master it well enough for me to feel comfortable subjecting others to the noise.

Well, that 45 minutes passed fast. Time to get to work. I promised I would look him up whenever we get to Niagara. I guess it wasn't a total nightmare working him and his bug, after all. Kinda like talking to somebody with a thick accent.

After all, he is a New Yorker.

Craig W8CR

Craig Miller, W8CR, began his ham career in 1974 as WN8TLC. He lives in Ostrander, Ohio. He enjoys HF CW ragchewing with a little bit of DXing and contesting tossed

in. He is an active officer in the Delaware County (Ohio) ARES and a member of the DELARA (www.k8es.org) radio club.

Miscellaneous

New Member: Russell NØMNW joined the Club during the September meeting. Welcome to AARC!

SKYWARN Training: Dennis KØLGI recommends the MetEd online spotter training course at https://www.meted.ucar.edu/training_course.php?id=23. This free course provides baseline skills for registering as an NWS SKYWARN Spotter.

HAMBOREE 2011: Rich WAØZQG passed along a flyer announcing that the Iowa State ARRL Convention is taking place on Saturday, October 22nd in Sergeant Bluff, Iowa. Admission is \$5 at the door (no advanced sales). Location is Sergeant Bluff Community Center, 903 Topaz Drive. Talk-in on 146.91 (tone will be off). See the web page at <http://3900club.com/> or mail Bob Molstad WØPOD, PO Box 3746, Sioux City IA 51102 for details.

Music Video Award: Mary NØTRK won an award for her music video entry, *Holding Out for a Hero*, at the Creation Entertainment Star Trek convention held in Chicago September 30—October 2nd. Congratulations, Mary!

DX Convention in Omaha: The National Radio Club and Worldwide TV-FM DX Association are holding a joint annual convention in Omaha, Oct. 13-16, at Comfort Inn, 7007 Grover Street. Includes tours of local stations/transmitter sites, drive-by of the Offutt communications site north of Elkhorn, and a trip to the Air & Space Museum at Ashland. More Info: <http://www.nrcdxas.org/convention/11nrcon/omaha11.html>

AK-SAR-BEN Amateur Radio Club, Inc.

Ham Hum

Volume LXI, Issue 10

October 2011

Assembling Powerpole Connectors



(Pat KØCTU shows Andrew Schmitz how to put together a connector.)

The originally announced topic for the September meeting, 9/11 Memories, was changed at the last minute to a demonstration of how to install Anderson Powerpole connectors (<http://www.andersonpower.com/>). Pat KØCTU, who has been using these connectors for building power cables for various radios (such as the Alinco DR-435T UHF transceiver), set up a table displaying the parts and tools needed.



The October Meeting Subject Is

PIRATE RADIO

Presented By

Joe Eisenberg KØNEB

Be there on Friday the 14th at 7:00 PM!



HAM HUM is the official newsletter of the AK-SAR-BEN Amateur Radio Club, Inc. in Omaha, Nebraska. It is printed monthly and is distributed to members of the club, local disaster officials, local electronics outlets, and editors of other ham radio newsletters.

Articles about activities of members are solicited. The subject matter must be of general interest to radio amateurs and be understandable to a significant portion of the membership. No payment will be made to contributors and submissions will be subject to the usual editorial review. Articles containing statements that could be construed as libel or slander will not be accepted. No guarantee can be made that an accepted article will be published by a certain date. Send your contributions to Ham Hum, P.O. Box 24551, Omaha, NE 68124-0551 or email hamhum@aksarbenarc.org. Please contact the editor for permission to reprint anything appearing in the Ham Hum.

Club Officers & Board Members

President	Mary Joseph	NØTRK	402-492-9156	n0trk@arrl.net
Vice President	Bill McCollum	KEØXQ	402-690-7965	ke0xq@cox.net
2011-2012 Board (Secretary)	Bill True	WA9ASD	402-426-2813	williamtrue@aol.com
2011-2012 Board (Treasurer)	Marvin Taylor	AEØEG	402-556-3668	AEØEG@arrl.net
2011	Jim Harper	KCØSHZ	402-659-0102	kc0shz@yahoo.com
2011	Claudia Peterson	K1AUD	402-593-1950	kc0sqx@arrl.net
Immediate Past President	John Gebuhr	WBØCMC	402-932-3443	wb0cmc@cox.net

Club Committees

Courtesy Committee	Bill McCollum	KEØXQ	402-690-7965	ke0xq@cox.net
Education	Mary Joseph	NØTRK	402-492-9156	n0trk@arrl.net
Field Day	Claudia Peterson	K1AUD	402-593-1950	kc0sqx@arrl.net
Membership	Mary Joseph	NØTRK	402-492-9156	n0trk@arrl.net
Monday Night .94 Net	Rich Swig	WAØZQG	712-256-7774	wa0zqg@yahoo.com
Prizes	Rollie Miller	ABØNN	402-333-1606	ab0nn@arrl.net
Public Service/Emergency	Jim Harper	KCØSHZ	402-659-0102	kc0shz@yahoo.com
Publications	Bill Wilkinson	KCØSVZ	402-397-8803	kc0svz@yahoo.com
QSL Manager & Technical	Ed Edwards	KØIL		k0il@arrl.net
Special Events Coordinator	Pat Joseph	KØCTU	402-492-9156	ppjoseph@cox.net
Web Services	Mary Joseph	NØTRK	402-492-9156	n0trk@arrl.net

Repeater Committee

Chairman	John Gebuhr	WBØCMC	402-932-3443	wb0cmc@cox.net
Vice Chairman	Steve Schmitz	NØUP	402-306-2972	n0up@arrl.net
Control Operator	Mary Joseph	NØTRK	402-492-9156	n0trk@arrl.net
Club Callsign Trustee	Corby Krick	KØSKW	402-540-5483	k0skw@k0skw.net

Other Contacts

ARRL Midwest Director	Clifford Ahrens	KØCA	573-221-8618	k0ca@arrl.org
ARRL Midwest Vice-Director	Rod Blocksone	KØDAS		
EC Douglas County	Steve Schmitz	NØUP	402-306-2972	n0up@arrl.net
EC Sarpy County	Dennis Mitchell	KCØYKN		
Exams/Vol. Council	Brian Zdan	KMØY	402-553-2610	bzdan@novia.net
NE Section Manager	Art Zyguelbaum	KØAIZ	402-421-0839	KØAIZ@arrl.org
Official Observer Coordinator	Bill McCollum	KEØXQ		ke0xq@cox.net

October Meeting

The next meeting of the AARC will be on Friday, October 14th at 7:00 PM. The location is the Heartland Chapter House of the American Red Cross at 81st and Spring (near 81st and Center). Joe Eisenberg, KØNEB, will give a talk on Pirate Radio.

AARC on the Web

Club Web Site: <http://www.aksarbenarc.org/>

Facebook: <https://www.facebook.com/aksarbenarc>

Yahoo! Groups: <http://groups.yahoo.com/group/AKSARBENtalk/>

(Meeting Minutes continued from page 5.)

The price of a suitable new cargo trailer is \$4,500 to \$5,500 as ordered. The committee recommends the club use the funds from the N6KVA memorial to assist with the purchase of an 'experienced' trailer. The estimated cost of a used trailer meeting the criteria is \$2,000 to \$3,800, based on advertisements.

A motion was made by Steve, NØUP to allocate up to \$3,800 to purchase a used trailer, in good condition, for the N6KVA Memorial Equipment Trailer. The \$3,800 is to include the funds in the memorial at the time of purchase. This allocation will allow funds to be available, if necessary, for any essential maintenance items. This motion was seconded by John, WBØCMC. Discussion followed the motion. The motion, when put to a vote, passed unanimously.

New Business - John, WBØCMC, reported that the Benson Farmers Market will end its season with an event on September 18 from 8 AM to 1 PM. A ham radio demonstration would be appreciated. The Club will attempt to arrange something.

Door Prize Committee Report - Rollie, ABØNN reported that prizes this night include a Heathkit crystal controlled 80 meter SSB transceiver designed for MARS service, a Dual band HT antenna and the dreaded Brown Bag Door Prize. As an added treat, there will be an item available from the noted collector and DXer Anton Reeh, UNIQUE.

Announcements - There will be a VE test session September 27 at 6:30 at the Red Cross.

At 7:43 PM a motion was made by Steve, NØUP, seconded by John, WBØCMC to end the meeting. Passed unanimously.

Bill WA9ASD, Secretary AARC

(Market to Market continued from page 7.)

The start was broken into four waves of approximately 70 runners each which started at 6:00, 6:45, 7:30, and 8:15. Mary, NØTRK organized our volunteers and I was net control. We had 12 people out at the exchange points to watch the teams of runners swarm the exchange points and cheer on their team mates. We were there to pass on news of any problems, such as traffic issues, or injured or sick participants. If there was anything to pass on to the supervisors of the event I called them on the phone. They were listening to us on a scanner while they were driving along the route. Many times when I called them they had heard the conversation, so that made it easier to discuss it with them.

Some of our people needed to work two sites. That means they would leave one site as soon as the last runner had left and drive to the next site that they were needed. There were very few issues that we had to address. That shows that it was well planned out and organized. The reports that I heard from our people said that the participants were well behaved and appreciative of our assistance. That's the reason that we do what we do.

Thanks to the following outstanding volunteers: Mary NØTRK, Steve NØUP, Bob NBØB, Wayne WH6BUL, Dennis KCØYKN, Virginia NØVMH, Marvin AEØEG, Jerry W9JD, Tom KDØLXG, Claudia K1AUD, Rob KCØOYT, Adam KDØMMG, Mark NØWQK, and me KØCTU.

Pat KØCTU

Bitten by the Bug

By Craig Miller, W8CR

Ahhhhh, just put the kid on the bus, and the wife is on her way to the salt mine. Now, I have 45 minutes to see if I can scare up a quick QSO.

40 meters sounds pretty quiet this morning—no ear splitting static crashes. The usual morning CW junkies must have already headed off to work or out mowing the grass. I spin the dial down to 7.023 to see if any speedsters are still on. Some days, I can even keep up with them at 30-35 wpm. It must be later than I thought, though. Those guys are gone too.

Tuning back up to 7.030, I hear a couple of guys wrapping up a chat at about 20 wpm: "FB FRED MUST QRT TO WALK THE DOG 73 ES CUL..." (translation: "Good copy, Fred, but I really gotta go to the bathroom! Best regards and see you later.").

I spin the dial up to 7.032, and don't hear any beeps or boops. I guess here is where I'll cast my line. "QRL?" (translation: "Anybody out there working that last rare DX station for your DXCC that I can't hear?"). Nuttin' heard. I'll QRL one more time before "CQ CQ CQ DE W8CR W8CR K". Silence. Again "CQ CQ...". Just the hiss out of the speaker. Well maybe this ain't gonna happen today. One more time...

Bam – I got one! He's got a nice strong signal too. But, wait. What the ...? What is he sending me? "DAAAAHHHHHH DIT DIT DIT DIT DAAAAAAHHHHHH DAAAAAAHHHHHH DAAAAAAHHHH DIT DITDITDIT DIT DIT DITDITDITDAAAAAAHHHHHH." NUTS! He's using a bug, a mechanical key dating back to the old railroad days. It's an ingenious mechanism for sending high speed code, but it takes a lot of practice to send clear, copyable code. I can barely make out my callsign let alone his – this isn't gonna be fun.

I have two options:

1. Don't reply and pretend I didn't hear him. He's really strong, though, and most likely I am, too. He knows I can hear him. Plus, that's the coward's way out.
2. Answer him and tough it out.

I answer him. We exchange the usual stuff. My RST is 579, his name is Bill, and he lives in Niassa Fihls, errrrr, Niagara Falls, NY. "Niagara Falls, eh?" We've been wanting to visit there before our kid gets too old to even want to be seen with his parents, let alone ride in a car for 6 hours to look at water flowing over rocks. Plus, that's where Nikola Tesla built his hydro power station that illuminated Buffalo over a hundred years ago. I'm hooked now – lotsa questions for him.

(Bitten by the Bug continued on page 12.)

Want Ads

Self-Supporting Tower Ready to move and install. Rohn HDBX48 w/40' & 48' rotor plates & thrust bearing, new HDBX hardware package and BXB8 concrete base stubs, extra "flat" steps kit, 10' carbon steel mast, grade 40 rebar (28); (costs for all items if new: \$2050); free hardline included, asking \$550. Contact Ed, KØiL, 402-598-0574

Tower for Sale 40 ft Rohn HBDX free standing tower. Also included: A Mosley TA 33 Tri Band Yagi, Ham IV Rotor and Control Box, 40/80 inverted Veels, all cables coax. Everything working as it should. Make me a offer and take it down it's yours. Nothing in the way, an easy take down. Call Duke WDØEWH 402-571-4178 or e-mail dukeewh@cox.net.

September Door Prizes

Several interesting prizes were awarded during the September meeting: (1) CMET BNC 146/440 MHz dual-band antenna. (2) HW-18 SSB Transceiver designed for MARS and CAP use—which included a Heath HP-23A power supply, Swan 444 microphone, cables, wire antenna, dummy load, and wattmeter. (3) Brown Bag Prize. (4) Mr. Reeh Door Prize.

Andrew NØCALL drew the tickets. Pat KØCTU won the CMET antenna, but turned it down, so it went to the next person, Joe KØNEB. Dave NØJSB won the HW-18 station. The Brown Bag Prize turned out to be a power strip and was won by Russ NØMNW. Claudia K1AUD won the Mr. Reeh Door Prize, which turned out to be an aircraft radio compass manufactured by the Stratford Penn Corporation.

The AARC Mr. Reeh Door Prize is a new feature of the monthly Club meetings. It consists of various interesting items from the collection of world-traveler Anton Reeh. Prize Committee Chairman Rollie announced its inception at the October meeting and gave a prepared speech its origins. See *The Mr. Reeh Door Prize* below for details.

Note that the proceeds for each month's tickets go for buying next month's prizes. Each month's tickets are kept and included in the Grand Prize(s) drawing in December. The more tickets you buy each month, the better your chances of winning at the end of the year.

The Mr. Reeh Door Prize

Recently, a number of artifacts of early radio have surfaced in the United States. It is thought that these items were smuggled into this country from part of the collection of all bits radio by the famed international collector and DX operator Anton Reeh. In his travels to rare DX locations he acquired many unusual items for his collection.

He held the call sign of UNIQUE in the Republic of Kazakhstan for many years and, due to his many travels as a world wide DXer, he briefly held the US call of WØRTH followed immediately by the Argentinian call of L3SS. The last known call sign he was assigned was in Brazil as PØOPY. As our research continues I'm sure we'll discover more of the calls he used.

While many of the priceless items from his collection were snapped up by private collectors, a few have been negotiated for, at great expense, with the black market parts cartels so that they could be secretly brought to the midwest.

As an added treat for the AKSARBEN Amateur Radio Club meetings, we announce the start of a new era in door prizes. Please welcome the Mr. Reeh Door Prize.

Each month enjoy the suspense as we count down through the mundane socket sets, tie wraps, flashlights, and plug strips of regular door prizes to items of real value and significance from this famed collector. While some previous winners have commented "What is it?" and "Who would want it?" we're sure you will howl with glee as each month's treasure emerges for the lucky winner.

You may be a ham radio operator if: You have put a GPS tracker in the XYL's car or on the riding mower, just so you could watch it on APRS.



Veep Speaks

The program for the October meeting will be on Pirate Radio, presented by Joe, KØNEB. This is a very good and informative program.

Think about who you want to be club officers for 2012. It doesn't take all that much effort or time. I am burned out and that is why I will not seek any office for the next few years. I want to enjoy retirement and have fun playing radio.

Hope to see you at the meeting.

73, Bill KEØXQ, Vice President AARC

Club Meeting Minutes – September 9, 2011

The meeting was called to order at 7:00 PM by saying the Pledge of Allegiance. There were 23 attendees. Introductions by name and call.

Officers and Board Members present included: Mary, NØTRK; Bill, KEØXQ; Bill, WA9ASD; John, WBØCMC and Claudia, K1AUD.

Secretary's Report - A motion was made by N7JOD, seconded by Claudia, K1AUD to accept the July meeting minutes as published in the August Ham Hum. Motion passed.

Treasurer's Report - Marv, AEØEG reported that there were no revenues or expenditures since the last meeting. The account balances are as published in the September Ham Hum.

Vice President's Report - Bill, KEØXQ reported that the program for tonight's meeting will be informal discussions of what we were each doing on 9/11/2001 and individual installation of Anderson Power Pole connectors on power leads for equipment.

President's Report - Mary announced that the club is selling its Heil microphone for \$80 that was awarded to the club for it's promotion of the amateur radio film "Frequency" some years ago. At that time the club also was awarded an Icom-746. Unfortunately, the microphone does not work well with that radio. The proceeds of the sale will be used to buy a microphone suitable for the Icom radio. She reported that she intends to reactivate the Equipment Committee as an active committee. This committee will be charged with developing an inventory of all club equipment including locations. Members of the committee will develop procedures necessary to maintain the inventory as well as determine the disposition of donated equipment. Club members interested in serving on this committee should contact any board member or officer.

A nominating committee will be formed to identify candidates for the offices of President and Vice President and 2 Board members to be elected at the annual meeting in December. Mary also announced that she is requesting all officers and committee chairpersons to create a guidebook for the position they have in the club. These will make it easier for new persons to the position to understand their responsibilities and activities. Copies of these guidebooks will also be kept in the President's guide.

(Meeting Minutes continued on page 5.)

Contest Calendar

October 2011

NAQCC Straight Key/Bug Sprint
CWops Mini-CWT Test

NAQCC-EU Monthly Sprint
RSGB 80m Club Sprint, CW
CQ SA SSB Contest
JARTS WW RTTY Contest
10-10 Int. Fall Contest, CW
QRP ARCI Fall QSO Party
New York QSO Party
Iowa QSO Party
Worked All Germany Contest
Feld Hell Sprint
PODXS 070 Club 160m Great Pumpkin Sprint
Asia-Pacific Fall Sprint, CW
UBA ON Contest, 2m
Illinois QSO Party
Run for the Bacon QRP Contest
ARRL School Club Roundup
ARRL EME Contest
FOC QSO Party
Araucaria VHF Contest
Microwave Fall Sprint
SYLRA Contest
Stew Perry Topband Challenge
W/VE Islands QSO Party
SKCC Sprint
CWops Mini-CWT Test

RSGB 80m Club Sprint, SSB
CQ Worldwide DX Contest, SSB
50 MHz Fall Sprint

November 2011

Ukrainian DX Contest
ARRL Sweepstakes Contest, CW
High Speed Club CW Contest
DARC 10-Meter Digital Contest
CWops Mini-CWT Test

RSGB 80m Club Sprint, SSB

0030Z-0230Z, Oct 12
1300Z-1400Z, 1900Z-2000Z, Oct 12 and
0300Z-0400Z, Oct 13
1800Z-2000Z, Oct 12
1900Z-2030Z, Oct 12
0000Z, Oct 15 to 2400Z, Oct 16
0000Z, Oct 15 to 2400Z, Oct 16
0001Z, Oct 15 to 2359Z, Oct 16
1200Z, Oct 15 to 2400Z, Oct 16
1400Z, Oct 15 to 0200Z, Oct 16
1400Z-2300Z, Oct 15
1500Z, Oct 15 to 1459Z, Oct 16
2000Z-2200Z, Oct 15
2000 local, Oct 15 to 0200 local, Oct 16
0000Z-0200Z, Oct 16
0600Z-1000Z, Oct 16
1700Z, Oct 16 to 0100Z, Oct 17
0100Z-0300Z, Oct 17
1300Z, Oct 17 to 2400Z, Oct 22
0000Z, Oct 22 to 2359Z, Oct 23
0000Z-2359Z, Oct 22
0000Z, Oct 22 to 1600Z, Oct 23
0600 local - 1300 local, Oct 22
1000Z, Oct 22 to 1000Z, Oct 23
1500Z, Oct 22 to 1500Z, Oct 23
1600Z, Oct 22 to 2359Z, Oct 23
0000Z-0200Z, Oct 26
1300Z-1400Z, 1900Z-2000Z, Oct 26 and
0300Z-0400Z, Oct 27
1900Z-2030Z, Oct 27
0000Z, Oct 29 to 2400Z, Oct 30
2300Z, Oct 29 to 0300Z, Oct 30

1200Z, Nov 5 to 1200Z, Nov 6
2100Z, Nov 5 to 0300Z, Nov 7
0900Z-1700Z, Nov 6
1100Z-1700Z, Nov 6
1300Z-1400Z, 1900Z-2000Z, Nov 9 and
0300Z-0400Z, Nov 10
2000Z-2130Z, Nov 9

For details, check: <http://www.hornucopia.com/contestcal/index.html>

Address Change?

If you've changed your mailing address, or would prefer to receive the Ham Hum via email, please contact Mary NØTRK (Membership) or Bill KCØSVZ (Publications) with your new information.

You may be a ham radio operator if: You would rather help another Ham friend hook up new equipment, or to put up a new tower, than to mow your own lawn.

(HAM TECH continued from page 6.)

6. SM = Excess Signal to Noise Margin in dB over receiver input to yield 12 dB S/N output. This must be positive.

So let's put it all together in free space and see if we have enough signal at the receiver, a positive margin.

$$\begin{aligned} 7. \text{ SM} &= P_T + G_A - L_T - L_P - S \\ &= 17 + 34.8 - 2.8 - 106.1 - (-151.0) \\ &= 94.0 \text{ dB} \end{aligned}$$

The 94.0 dB margin is not valid for a true free space condition, such as amateur satellite where the signal path is totally free of earth effects. The antenna gains used above include the effect of earth. For free space conditions we must reduce the gain of each by approximately 6 dB. This gives us a margin of about 94.0 – 12 dB or 82.0 dB. This is a huge margin but we are not finished.

Let's go back to the on-earth case. We still need to correct for two effects. First is the fact that the signal is grazing the earth at the horizon point. If we wanted no added loss here the signal would have to clear the earth by a distance equal or greater than the radius of the first Fresnel Zone. This is a term from the diffraction theory of light. The first zone radius is:

$$R_{1st} = 1140(d/F)^{1/2}$$

This is for our antenna and earth geometry. At d = 20 mi and F = 144 MHz R1st = 425 ft. We just have to increase both tower heights by 425 ft to 475 ft. It's not very practical for ham use. Even at microwave frequencies like 2304 MHz it adds 106 ft. Let's look at the added loss at the horizon point if we just leave the signal on the ground. The added loss is between 10 and 20 dB. (Ref.1.) Let's use up 20 dB of our 94.0 dB margin and save a bundle on tower cost.

The second loss we must account for is that due to the antenna beams being elevated due to the ground reflections. With horizontal polarization the ground reflection coefficient is out of phase and is approximately between 0.9 and 1.0 depending on the conductivity of the earth. For sea water it is nearly 1.0 and produces a near cancellation of the signal right on the horizon. Over land a value of 0.9 is more likely, resulting in a field strength of $1.0 - 0.9 = 0.1$. The signal is reduced on the horizon by $20 \log(0.1) = -20$ dB at each antenna. So here goes another 40 dB of our margin. We still have $94 - 20 - 40 = 34$ dB. Our 12 dB S/N will now be $12 + 34 = 46$ dB, a good strong signal. We could reduce our transmitter power by 30 dB to 50 mw and still have a good system.

Next month we stretch the radio signal further around a curved earth, possibly to 300 to 400 miles and enter the world of Tropospheric Scattering. Remember discussion and Q&A on this article is on Monday Dec. 13th at 8:45 PM on the SJRA repeater, 145.29 PL 91.5.

Ref.1. K. Bullington, "Radio Propagation Fundamentals" Bell System Technical Journal, vol. 36, No 3, Fig. 8. 1957. (<http://tinyurl.com/3qy9cg4>)

(Meeting Minutes continued from page 4.)

Public Service/SATERN/Community Events - ARES - Steve, NØUP reported there will be a drill on October 15 in the afternoon or evening. The theme will be based on a zombie invasion in Benson. More details to follow.

SATERN - nothing to report.

Community Events - The Market-to-Market race this month needs more workers. Since this is a long duration race, workers are needed both early and late. Talk to Pat, KØTCU for details and sign-up.

The Crop Walk is scheduled for October 9 at 67th and Dodge.

Membership Committee - Mary, NØTRK requested help with this committee. We need to be contacting new hams as well as creating and distributing membership cards and certificates. Web access is required for this.

Education Committee - Mary requested that people who can assist with teaching sections of the class should contact her.

Publications/Web Services - Bill, KCØSVZ reported that Ham Hum is out.

Web Services - Mary reported that there is a need for someone to maintain the club's website. Internet access is required.

Repeater Committee - John, WBØCMC reported "Swerkin".

Field Day Committee - As reported last month, it's over. Mary suggested that persons interested in being Field Day Committee Chairperson next year contact any Officer or Board Member and their interest will be passed on to the next club president.

QSL Committee - no report.

Technical Committee - no report.

Courtesy Committee - no report.

Public Awareness - Mary reported that the NEWCON convention, scheduled for October 1 and 2 conflicts with other club activities. Although the group is very interested in the our club's participation we will be unable to attend.

Old Business - Steve, NØUP, representing the Trailer Committee reported the following. The Trailer Committee was created because the current equipment trailer is no longer adequately protecting the club's equipment. It was built on a 1952 camper chassis, making it very heavy to pull with today's smaller vehicles. It is in need of an axle as parts are no longer available for this model. This trailer should be stripped and converted to a base for a crank-up tower.

The recommendation of the Trailer Committee is to replace the current equipment trailer with an enclosed cargo trailer of the current era. The replacement trailer should be 6' X 12' or 7' X 14' with a single axle. This size will allow for easier towing; it will be more weather and critter resistant; it will cost less to maintain and will allow for easier access to the coax, extension cords, antennas and other items currently stored in the trailer. This size trailer will also provide room for one or more emergency operation stations inside.

(Meeting Minutes continued on page 11.)

HAM TECH v1n2: Line of Sight (LOS) Propagation

By John Fogleboch Sr. WY2J

Email: wy2j@arrl.net

(Reprinted from the South Jersey Radio Association <<http://www.sjra.org/>> newsletter, Harmonics, Ted Groke, W2TAG, Editor.)

Last month HAM TECH introduced LOS propagation in terms of coverage as a function of antenna heights and cited a few applications where LOS is in common use by hams. This month we explore the various signal gains and losses in a typical 2 meter LOS system. We also get comfortable in doing the math in one of the simplest form possible, the logarithmic form, better known as the dB. We are all familiar with expressing amplifier and antenna gains and transmission line and other losses in dB. We can calculate propagation losses in dB and put absolute signal levels like transmitter power and receive sensitivity in units of +/- dBw or dB above or below a watt. Then we just add up all the dB terms to solve our equations and get the desired answer. In the example that follows we are looking for the S/N margin above 12 dB.

Let's start with the two 50 ft. towers spaced 20 miles apart from the last issue. We will put 6 element yagi antennas on top of each with horizontal polarization. The gain of each will be 17.4 dBi and the elevation angle of the first lobe is 2 degrees. The units are dB above isotropic, that mathematically convenient but unbuildable antenna. But don't worry because we are going to calculate the free space path loss between isotropic antennas so it all comes out correct in the end. We will feed the two antennas with 100 feet each of 9913 coax which has about 1.4 dB of attenuation at 2 meters. For rigs we will use two Yaesu FT7800 FM units. These have transmitter power outputs of 50 watts and receiver sensitivities of 0.2 microvolts for 12 dB S/N ratio. This is 2 S Units above noise and allows speech to be copied but it is not fully quieted. So let's build the equations of our two-station model.

1. Transmitter Power = 50 watts

$$P_T(\text{dBw}) = 10\log(50) = +17 \text{ dBw}$$

2. Antenna gains = 17.4 dBi each

$$G_A = G_t + G_r = 17.4 + 17.4 = 34.8 \text{ dBi}$$

3. Transmission Line Loss = 1.4 dB each.

$$L_T = L_t + L_r = 1.4 + 1.4 = 2.8 \text{ dB.}$$

4. Free Space Propagation Loss

$$L_p = 36.9 + 20\log(F_{\text{MHz}}) + 20\log(D_{\text{mi}})$$

$$L_p = 36.9 + 20\log(144) + 20\log(20) = 106.1 \text{ dB}$$

- 5 Receiver Sensitivity $E = 0.2(10^{-6})$ volts.

$$S(\text{watts}) = E^2/R = (0.2(10^{-6}))^2/50 = 8(10^{-16})$$

$$S(\text{dBw}) = 10\log(8(10^{-16})) = -151.0 \text{ dBw}$$

(HAM TECH continued on page 8.)

2011 Market to Market Relay

By Pat Joseph, KØCTU

Very early on a Saturday morning 244 teams of runners were ready to compete in a relay race from Omaha to Lincoln. At the same time another team was ready for a Saturday of running their radios in support of the relay.

This is the fourth year for the Market to Market Relay, and the fourth year for the Ak-Sar-Ben Amateur Radio Club to lend their communications support. On Saturday morning, October 1st, we launched the net at 5:15 AM and started the day at Memorial Park where the runners would begin their 82 mile odyssey. The 82 mile distance was broken up into 21 chunks, or stages. Our responsibility was the first 9 stages, reaching the Platte River foot bridge crossing south of Louisville. At that point the Lincoln ARC covered the rest of the stages. Each stage had a different level of difficulty, based on the distance and the layout of hills. Each team had either 6, 7, or 8 runners. (That means that there were close to 2000 total participants.) Each stage was covered by one of the runners in each team. As soon as the runner starts, his (or her) team mates jump into their van and travel to the predetermined point where the next runner starts the next stage. As soon as the runner reached that exchange point, he exchanges the baton to the next runner. This continues all the way to Lincoln until they reach the finish line.

(Market to Market continued on page 11.)

Club Calendar

Oct 13	NRC/WTFDA DX Convention. Comfort Inn, 7007 Grover, Omaha (see page 12).
Oct 14	7:00 PM AARC Meeting. Red Cross Building, 81 st and Spring St, Omaha, NE.
Oct 15	JOTA - Boy Scouts. See http://www.arrl.org/jamboree-on-the-air-jota and http://www.scouting.org/jota/registered_stations.aspx for details
Oct 16	Jamboree On The Air. Day two. See above links for details.
Oct 20	7:30 PM Bellevue ARC Meeting. 1908 Franklin St, Bellevue, NE.
Oct 22	Iowa State Convention (Hamboree 2011). 903 Topaz Dr, Sergeant Bluff, IA.
Oct 25	6:30 PM AARC Board Meeting. Village Inn, 7837 Dodge, Omaha, NE.
Oct 27	8:00 PM Southwest Iowa ARC Meeting. 705 N 16 th , Council Bluffs, IA.
Oct 28	07:30 AM PARC Meeting. 1900 E. Military Ave, Fremont, NE.
Oct 29	Ensor Museum Auction Tailgate & Special Event. 18995 W 183 rd St, Olathe, KS.
Nov 6	Iowa Section Convention. Clarion Hotel, 5202 Brady St, Davenport, IA.
Nov 8	7:30 PM Lincoln Amateur Radio Club Meeting. 4647 Superior St, Lincoln, NE.
Nov 11	7:00 PM AARC Meeting. Red Cross Building, 81 st and Spring St, Omaha, NE.
Nov 12	11:00 AM Midwest Home Brewers & QRP Group. Bredeaux Pizza, Ashland, NE.
Nov 17	7:30 PM Bellevue ARC Meeting. 1908 Franklin St, Bellevue, NE.
Nov 24	8:00 PM Southwest Iowa ARC Meeting. 705 N 16 th , Council Bluffs, IA.
Nov 25	7:30 AM PARC Meeting. 1900 E. Military Ave, Fremont, NE.
Nov 29	6:30 PM AARC Board Meeting. Village Inn, 7837 Dodge, Omaha, NE.
Nov 29	6:30 PM VE Testing. Red Cross Building, 81 st and Spring St, Omaha, NE.
Dec 1	7:00 PM VE Testing. Lincoln ARC, T&R's Garden Restaurant, 5250 Cornhusker Hwy, Lincoln, NE.
Dec 9	7:00 PM AARC Meeting. Red Cross Building, 81 st and Spring St, Omaha, NE.

For the latest updates and new events, see the *Upcoming Events* section of the AARC web site (<http://www.aksarbenarc.org/main/>).