

HAM RAG

Rockford Amateur Radio Association, Inc.

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in the Rockford area at <http://rara.tripod.com>

August 2004

Its going to take small steps in the battle over BPL.



Shari Harlan, N9SH, ARRL Illinois Section Manager
talks with Illinois Senator Dick Durbin about BPL at an
Democratic Rally Sunday at Sinnissippi Park Sunday.

Guess some of the US Senate hasn't heard much
about what BPL is, what it will do and it won't do.

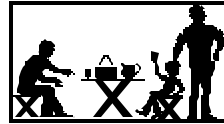
According to Gene Harlan, WB9MMM, our on the
spot reporter "when Shari, N9SH, asked what he
knew about BPL. It did not sound like he knew much
about it at all, but he was listening. I am sure that
Shari will follow up, as we all should, and tell our
representatives what we think about BPL or any
other issues that we are concerned about."

"How else are they going to be informed." Gene re-
porter. You can contact him via his website at:
<http://durbin.senate.gov/sitepages/contact.htm>

The next meeting is at 1 to 4 PM August 8th, 2004

The program for this month's meeting will be:

Annual Club Picnic Alpine Park Shelter #1



Fox Hunt to follow

Enter the main entrance on Alpine go to
the end of entrance road to the first left,
turn left and go up hill to Shelter #1.

August Picnic Update

The August meeting is the picnic at Al-
pine Park Shelter #1 (*Not the shelter that
we have had events*) on August 8th from
1 p.m. to 4 p.m.

The club will provide pop, burgers, and
hot dogs. You need to bring your plates
and silverware and a dish to pass.

Nicholas Lager, KB9SKW, is planning
a fox hunt after the picnic, so plan on
bringing your directional antennas to
join in on the fun.

**We will not have a meeting on the
second Friday of August.**

**On the Water Front update: The Friday time slots are full.
Saturday needs a supervisor and assistant and 8 people to staff booth.
However, there are no ticket sellers for Sunday
but we do have a supervisor and assistant the day.**

Presidents Log August 2004

Are you ready for the picnic and all that good food? I am, but then those that know me know I am always ready for food even though I am on a diet. The club is providing the meat and pop, you supply a dish to pass (a good one!).

We will only have a short meeting at the picnic. We need to just spend more time getting to know one another than have a druggie (spell check accepted that word, I'm surprised) ole meeting.

From what I hear, there are 40+ people signed up and I know others that have not signed up. Signing up was not a requirement, but it sure helps to know how much food to buy. If you have not let Gary Hilker know, please call him and let him know how many family and friends will be coming. If I were to guess, we might have as many as 60 people coming. Do you want to be the one where others said, "where is ??????"

Don't forget to call Scott Allshouse and let him know what shift you would like to work at the On The Waterfront festival. Saturday and Sunday still needed people when I talked to Scott last. If we don't need your help any other time of the year, we really do need it now.

They have also done something new this year for all the different groups that raise money through the Waterfront Festival. There will be a tent close to the bank at State and Wyman where we can put up a sign telling about our organization and we will be allowed to have people there to answer questions if we so desire. I think that would be nice, but it is up to the membership to come forward and say, yes, I want to spread the word about how much fun amateur radio is. We will have a sign at the least.

We, Shari & I have never been to a political rally before, but decided to go to one today. At the end, Shari said, "Just a moment, I need to talk to Dick Durbin." Well, we all know Shari, and she did, asking what he knew about BPL. It did not sound like he knew much about it at all,

but he was listening. I am sure that Shari will follow up, as we all should, and tell our representatives what we think about BPL or any other issues that we are concerned about. How else are they going to be informed. I had my camera along as you can see.

We are trying to plan something special for September, but since it is not solidified yet, I cannot mention what it is. If it comes off, we may have a large meeting and may need an alternate meeting place. We will let you know, so stay tuned.

See you at the picnic.
73

Gene - WB9MMM



Please be aware of the many activities this summer that need Amateur Radio operators for event communications.

If you can please volunteer for this events. Go to <http://www.angelfire.com/tv2/skywarn/> for more information.



Dates to Remember:

**The annual picnic - August 8
State Street Mile - August 14
On the Riverfront - Labor Day Weekend**

Have anything or would like to submit an article to be put in the Ham Rag or the website?

Contact me by e-mail at ka9sog@arrl.net and visit <http://rara.tripod.com> for any late breaking news and information.

Please submit any articles before the 1st of each month.

Using Part 15 Wireless Ethernet Devices for Amateur Radio

Background:

In 1989 Al Broscius, N3FCT suggested the use of Part 15 Spread Spectrum wireless ethernet devices that were becoming available for amateur packet radio use.

Implications for the Radio Amateur- an excerpt from "License-Free Spread Spectrum Packet Radio" by N3FCT in 1989

There are numerous manufactures of these devices. They operate on the shared 900 MHz, 2.4 and 5.7 GHz bands with speeds between 1 and 54 Mbps.

Wireless LAN product/feature comparison- by Barry McLarnon, VE3JF (slightly dated) (410 Kb PDF -mirror)

Amateur Band Allocations- for the 900 MHz, 2.4 & 5.7 GHz bands

In early 1997 TAPR began development of a 1 watt, 128 Kbps 900 MHz FHSS radio, suggesting this is the future for amateur packet radio.

In late 1999 the FCC relaxed Amateur Spread Spectrum rules. Now allowing any commercially available Part 15 SS device to be reclassified under Part 97. (Prior only certain spreading codes where allowed)

Part 97.311- current Amateur spread spectrum rules

In late 1999 we formed GBPPR to encourage advancement in packet radio using readily available - off the shelf hardware. Some of our more well noticed work included:

915 MHz BDA schematic, 2.4 GHz BDA schematic, Interactive Wireless Design Utilities

In mid 2001 the ARRL's High Speed Multimedia Working Group (HSMM) was formed & began encouraging wide-spread use of spread spectrum modes of communications such as IEEE 802.11 on amateur radio frequencies.

Today:

We know it is possible as unlicensed Part 15 devices to obtain omnidirectional ranges up to about 5 miles and directional ranges up to about 17 miles using high gain antennas.

We should also realize that greater communication ranges are possible (if necessary) by reclassifying these devices under Part 97. We are then allowed to modify them using pre-amps, RF amplifiers and high gain antennas. Then by placing a central routing node in the middle of town on top a tall building/ tower or hill they can serve as a inexpensive high speed supplement/alternative to existing packet radio systems.

Part 97 vs Part 15 & Permissible Power Comparison - and clarification

Price comparison- between a conventional packet setup and a Symphony setup

Misc. Part 97 clarifications- pertaining to this application

True some urban areas may be very infested with Part 15 devices already. But you have 3 bands to choose from, and you shouldn't have any problems if you use FHSS, with one watt

amplifiers before your antenna polarized the opposite of everyone else.

My Experiences:

I have experimented with Proxim's Symphony 1.6 Mbps Frequency Hopping Spread Spectrum 2.4 GHz net work card. It was only \$130 and as a Part 15 device coupled with an old 24 dB MMDS 2.5 GHz partial screen parabolic antenna (previously used for receiving rural wireless cable) you could easily obtain ranges up to 6 miles line of sight.

Low Cost Wireless Network How-To- our abundance of documented, experiences, work and research (which includes homebrew bi-directional amplifier designs and path-loss calculators)

Re-classifying:

All commercially available wireless ethernet devices are suitable for Amateur use. However there are 3 things you may need to pay attention to when re-classifying.

You need to identify your station every 10 minutes by transmitting your callsign in ASCII or by some other method that is publicly documented.

I suggest having a script send out a ping every 10 minutes with your callsign embedded in it. (more info)

You will need to keep your operations within the 2400-2450 MHz amateur overlap if you plan to re-classify under Part 97. (this is only an issue on the 2.4 GHz band with FHSS, all other bands have full overlap & DSSS systems can be set by user for center freq below 2.45)

Order your Symphony directly from Proxim and send a copy of your license and they will change your cards country code shifting operation below 2450. (more info)

If you need to amplify your spread spectrum signal over 1 watt PEP you will need to incorporate automatic transmitter power control.

You may need to buy a expensive commercial amplifier (such as Teletronics Bi-directional SmartAmp) to accomplish this. (more info)

If your like me and are seeking a simple way to build a high speed, affordable, RF network, where you mimic the internet and have web, mail, and FTP services, streaming digital audio/video over IP, conferencing, and so on, I encourage you to look into this technology and use it. If you use this technology and would like to share your experiences, or if you have questions, you may contact me . Also feel free to link to this document and or reprint any portion of it.

Steve Lampereur, KB9MWR

Here is the link to get to the info in this article:

<http://www.qsl.net/kb9mwr/projects/wireless/plan.html>

SCHEDULED DXPEDITIONS

By K9LJN & W9GD

CALL-SIGN	QTH	WHEN	QSL VIA
ST2T	SUDAN	NOW	S57DX
YJ0II	VANUATU	NOW TO AUG 15	DK1II
5X2A	UGANDA	NOW TO AUG 21	K4ZLE
T6RF	AFGHANISTAN	NOW TO AUG 31	F6ITD
YA0Y	AFGHANISTAN	NOW TO AUG 31	DL5SE
FO5RN/P	FRENCH POLYNESIA	NOW TO SEPT 1	F5MJV
ZD8I	ASCENSION IS.	NOW TO 2006	G4LTI
7P8RN	LESOTHO	SEPT 3-12	G4IRN

Recently Heard/Worked DX From the Rockford Area

By K9LJN & W9GD

CALLSIGN	QTH	QSL VIA
4L3Y	GEORGIA	DK6CW
5R8GZ	MADAGASCAR	G3SWH
7X4AN	ALGERIA	DIRECT
9Q1KS	ZAIRE	DIRECT
A45WD	OMAN	YO9HP
A61R	UNITED ARAB EMIRATES	DIRECT
CE0ZIS	JUAN FERNANDEZ	CE2RKD
ES1WN	ESTONIA	DIRECT
FO5RJ	FRENCH POLYNESIA	F8IJV
FP/K9OT	ST. PIERRE	K9OT
HB0/DJ5MN	LIECHTENSTEIN	DJ5MN
OJ0J	MARKET REEF	OH0RJ
UN7MO	KAZAKHSTAN	EA7FTR
V51AS	NAMIBIA	DIRECT
YN4SU	NICARAGUA	TI4SU
ZC4CW	UK SOV. BASES ON CYPRUS	G3AB

Operating Tips

Most days I have a limited amount of time to operate, so when I turn on the radio, I want to optimize my time and quickly determine which bands are open and which one I want to operate first. If it is 9 AM local time, I don't even bother to listen to 30, 40, 80 or 160 Meters because they generally won't have any DX to chase until after dark. My preference is CW so I quickly tune across each band using the **wide (SSB) filter** looking for activity and pileups.

Once I determine which band has the most activity, I make sure that I have my record of confirmed DXCC countries handy so it can be referred to at any time (computer logging programs are perfect for this type of information retention).

I again use the wide filter and quickly scan the band for pileups. If one is found and it is an unconfirmed DXCC country for me, I analyze the operating characteristics of the DX station (per the DXCC Game Plan System article published in the April 2004 Hamrag), then work him and continue searching for more pileups. If none are found, quickly scan the band again for stations calling CQ. If none are found, switch to the narrow filter and carefully scan the band for DX QSO's, looking for other unconfirmed DXCC countries. Once completed, you have a very good idea of what stations and DXCC countries are on that band. Then I go to the next active band and repeat the same process over again until all of the bands have been covered.

This scanning pattern can take a total of 15 to 30 minutes to cover four or five bands if there is a lot of activity, but is much more efficient than just doing a careful scan of one band with the narrow filter in your rig. This technique really works in optimizing my limited "radio time" and hope that it is also helpful to you.

73 & DX, Gary - K9LJN

**Rockford Amateur Radio Association
Monthly meeting of the membership**

July 9, 2004

St. Anthony's Hospital

Members present: 29 present.

RARA President Gene Harlan, WB9MMM called the meeting to order at 7:05 pm.

Minutes: Secretary Wendy Owano, KC9BCF read the minutes from the June meeting. John Lawrence, N9OTC moved to accept the minutes, second by Larry Snyder, K0HNM motion carried.

Treasurer's Report: The club balance was \$5,263.90 as of June 30, 2004. Dave Bond, W9MG moved to accept the report as presented, second by Gary Hilker, K9LJN motion carried.

Old Business

Field Day: Gary Hilker reported that the club accumulated 4,562 points. **Thank you Dick Fleming, KC9BCB, along with help from his wife for organizing a successful event.**

OTW: Committee chairman Scott Allshouse, W9SBA reported that help is needed on Saturday and Sunday, September 4 and 5. This year our ticket booth location is the north side of Davis Park, a very busy area. **Let Scott know if you can help with this important club**

The monthly Board of Directors Meeting are held at Saint Anthony Medical Center 5666 E. State St. Rockford, IL on the last Tuesday of each month at 7:00 PM. *Except for December.*

RARA Officers for 2004

President: Gene Harlan WB9MMM
Vice President: Scott Allshouse W9SBA
Secretary: Wendy Owano KC9BCF
Treasurer: Carl Cacciatore W9TQ
Director: Dan Hunt KC9ATR
Director: Gary Hilker K9LJN
Director: Nicolas Lager KB9SKW
Director: Larry Snyder K0HNM
Newsletter and Web Site:
John Auerswald KA9SOG

fundraiser.

New Business

PIO Steve James, KA9NPT mentioned some dates of interest:

Oak Creek, WI ham fest July 10

Fox River Radio League Ham Fest—

July 11 at Aurora Central Catholic High School

Ham Fest July 11 Indianapolis

August 5, 6, and 7 Elgin Antique Radio

Show and flea market

The RARA picnic is Sunday, August 8 in place of the regular Friday night meeting. The picnic is at Alpine Park, shelter 1 from 1-4 pm. Nicholas Lager, KB9SKW will have a fox hunt after.

John Lawrence reported that a fire department emergency drill will be at the Rockford airport on July 10 at 8 am. If interested in participating contact Sue Peters, KA9GNR or John.

Contact Gene or Larry Snyder if interested in an extra license class.

Larry Snyder has donated multiple gel cell batteries for the raffle for tonight's meeting. These are strictly for ham radio or emergency communication. **Thank you Larry!**

Tom Harmer has the RARA club logo for embroidery appliqué on clothing.

Club membership lists are available from Gene.

Chuck Liljegren, WB9UMC moved to adjourn the meeting, second by Larry Snyder, motion carried.

Andrew Snead, N9SNX, Chief Deputy of Technology and Communication for the Winnebago County Sheriff did a presentation about the new county emergency communication center for the rest of the meeting.

Respectfully submitted,

Wendy Owano, RARA Secretary



Broadband Fool's Gold

Broadband over power-lines (BPL) has been hailed as the "great broadband hope" by FCC commissioner Powell, who believes it will usher in a new age of competition. Others lean on world-wide trial failures as evidence the technology is doomed-for-obsolence; during its run bringing plenty of trouble (and interference) to areas contemplating the option.

BPL is a system that is being tested to provide broadband Internet service via powerlines to power outlets in homes and is a last mile technology. The system uses radio frequencies that will radiate into the air and cause interference to several licensed communications services including Amateur Radio. The frequencies BPL uses in general is 1 to 80 megahertz (MHz). Of particular interest is the band of frequencies known as HF, which is 1 to 30 MHz . This part of the radio spectrum has very special properties not found elsewhere. With this band, one can communicate around the world with very minute power levels. This is due to the fact that radio waves in this band can bounce off the ionosphere multiple times to get to a faraway destination. Other portions of the radio spectrum, like that used by 802.11 wireless LANs, are essentially line-of-sight. This means that the signals cannot bend or bounce off the ionosphere, but they can only propagate like light – in a straight line and shorter distances.

The medium of BPL, the powerline cable, unlike other broadband mediums such as copper twisted pair, fiber, and coaxial cable, is inherently unsuited for carrying the frequencies BPL uses. Power lines, twisted pair, and coaxial cable all act like natural low pass filters, meaning higher frequencies are attenuated more than lower frequencies when attempting to transmit them through the medium. The exact slope of the graph of attenuation depends on the specific construction of the material, but in general, twisted pair is suitable up to 100 MHz and coaxial cable can go up to about 3 GHz. Power lines are suitable for up to perhaps 350 kHz or so. The exact figure will vary and is unimportant for this discussion, but note that this is kilohertz, not megahertz or gigahertz. The medium of BPL is simply not suited for broadband data.

The other property of the medium chosen for BPL is its radiating capability. Unlike all other broadband mediums, power lines are excellent radiators of the frequencies BPL uses. Copper twisted pair, coaxial cable, and fiber are all inherently non-radiating self-shielded mediums. Powerlines act like a natural antenna and “lose” the BPL signal out into the air. The resulting interference can vary from a noticeable noise to a “deafening roar” on radio equipment which drowns out all communications.

BPL has been tested and deployed on a limited basis in other countries and was rejected in some places due to interference issues. BPL vendors may claim “new technology” and advances have now made it possible, but the fact is they can't change the laws of physics. High speed data must occupy a certain amount of “bandwidth” and power lines which were designed to operate at 60 hertz will radiate radio frequency energy that is applied to them. Only changing power line construction (i.e. coaxial cable) would eliminate this radiation. BPL proponents reject this as being too costly, but that would be the cost to make this a real viable technology.

Users of the affected radio spectrum cannot be relocated, or at least not economically or in a timely manner. All of the services that use HF bands require the characteristics that only HF spectrum exhibits. There would also be huge international treaty implications with any relocation. Relocating government and military services alone would take years as the FCC would have to structure a migration plan. Chances are it would be ten years before this could be completed and it's likely that power companies will have run fiber to the home or DSL and cable will finally be ubiquitous. Perhaps the largest issue to tackle though is where to move these services in what is an already overcrowded spectrum.

If it was determined that relocation was the way to go, this would be very irresponsible as HF radio bands are a unique natural resource. No other radio spectrum can provide worldwide communications without any supporting infrastructure. The military (and Amateurs for that matter) have had satellites at their disposal for years, but HF is still in use as it provides unique capabilities that satellites just can't. Internet technologies such as email, streaming media, and instant messaging, or cell phones simply cannot take the place of the wireless infrastructure-free communications capabilities that HF provides.

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Destroying a large portion of wireless spectrum is not justifiable because it benefits more people. There are many examples of this in society where reallocation of a resource would benefit more people, but it would be detrimental long term to the people and the resource itself. Right now, Amateur frequency allocations belong to the people internationally and can be enjoyed in nearly every country by simply passing a test and getting licensed. Once they are given to a business interest, they cease to be the public's and can only be used as a customer of that business. BPL impacts other groups including government, military, shortwave, aviation, maritime communications, and CBers, so this would have national security and international implications as well. BPL has been linked in some rhetoric with increasing "homeland security". BPL in fact takes spectrum away from government agencies directly tasked with protecting the country.

To deploy BPL an up front investment must be made in BPL headend / injection point equipment and repeaters -- it's not as simple as FCC Commissioner Powell makes it sound, as if all powerlines can immediately be easily lit up. There's going to be significant recurring costs in backhauling the IP traffic from the numerous BPL injection points serving an area. Neither DSL or Cable has this recurring cost or need for multiple network origination points. These costs unique to BPL make it even less attractive for deployment in rural areas that Cable or DSL as customer densities and revenue potential is lower.

The scalability of BPL is questionable. Chunks of HF spectrum must be reused between repeater/injection point segments. With customer bandwidth requirements going up, over subscription ratios going down, systems will need to be segmented in a cellular fashion. This exacerbates the interference issue as more frequency chunks are in use in a given area. More avoidance of frequencies will be needed, making less spectrum available for use by BPL. The frequency chunks in use will need to be smaller to enable tighter frequency reuse, and the available bandwidth per injection point will get to a point where it won't be sufficient.

BPL is also lacking on the regulatory front. It has no protection from interference from licensed wireless services. This means your BPL provider has no recourse if a licensed wireless station knocks out your BPL service regularly. If BPL interferes with a licensed wireless station, the BPL provider must cease to operate the system if the interference problem cannot be solved. While on the surface one would think that this would inherently protect wireless communications, it places a huge burden on such services to expend time and money identifying and seeking resolution to interference issues. With such a weak regulatory basis and a system that is immediately at odds with incumbent services, why would anyone want to depend on BPL to provide reliable broadband?

The FCC recently released Notice of Proposed Rulemaking (NPRM) 04-29 which attempts to both encourage BPL deployment and address interference concerns. The NPRM basically proposes a national database of BPL systems and some interference mitigation techniques. Neither solve the interference problem. The database hopefully will aid in identifying BPL systems operating in a given area so that interference complaints can be filed more quickly with BPL carriers. While in general this is a good idea, it does little for mobile operations as it's impractical for such operators to research ahead of time before traveling into an area to determine if interference-free operation is possible. The interference mitigation techniques the FCC is proposing comes down to moving interference around in the HF spectrum until no one complains. The problem with this is that it's very difficult to find "open space" in this spectrum that won't affect anyone. The NTIA alone has over 18,000 frequencies in use. BPL carriers will receive an interference complaint, reconfigure their system to use other frequencies, only to interfere with another service. As BPL systems need more spectrum to feed a growing number of customers, more cells, and an increased demand for bandwidth, this interference avoidance juggling act will become impossible.

Radio Amateurs have been the most vocal in defending the radio spectrum, especially in Internet forums. Amateurs do not oppose broadband deployment, and in fact welcome it as most are born techies and use the Internet extensively. Some Amateur applications such as VHF repeater linking systems and position reporting systems actually use the Internet for connectivity and messaging. It is the ill effects of BPL on wireless spectrum which Amateurs vehemently oppose.

(Continued on page 9)

Radio league: Cable plan may cause trouble Group: Interference likely if Princeton uses power lines for high-speed Internet

July 27, 2004

By **BRANDON COUTRE**
of the Journal Star

PRINCETON - As the City Council moves forward with plans to offer high-speed Internet via the city's electrical system, a group of amateur radio operators is planning to protest the project.

"They're about to create a nightmare of interference. They're trying to put this stuff on the power lines, and they're not designed for that," said Stephen Gross, a member of the American Radio Relay League.

Broadband over power lines can cause interference with police and fire radio, as well as shortwave radio, according to Gross.

Over the past eight months, city officials have been developing a program that could provide high-speed Internet throughout the city via fiber-optic lines and, in the long run, through their city's electric system.

By offering high-speed Internet, Princeton officials hope to gain a competitive edge in attracting businesses and bolster economic development.

Gross said he is in full support of the fiber-optic program, but when it comes to broadband over power lines, he is strongly opposed.

"Princeton needs to realize we are not going to go away. We are going to make a stink out of this. We're going to do whatever it takes for them to forget about this project," said Gross, who lives in Mount Morris.

Gross plans to attend the next City Council meeting with a group of other amateur radio enthusiasts to let the city know of their opposition to the project.

Princeton City Manager Andrew Brannen said he has heard of Gross' complaints but said the city is continuing on as scheduled.

Any interference issues will be dealt with during a pilot program in a small area of the city, which should happen early next year.

"We were well aware that there were some communities that had interference. It's a local issue. If it is present in our system, we will deal with it before we make it available city-wide," Brannen said.

Offering Internet service through electricity is a new technology. Gross said the Princeton project is the first of its kind in Illinois.

Gross said he also wants to caution Princeton that because the city owns its electric system, it could face fines from the Federal Communications Commission if interference were to occur.

A week ago, city officials announced they will begin contract negotiations with Connecting Point Computer Center in

Peru to provide the Internet service.

Internet through fiber-optic lines, which mostly large businesses would utilize, should be available around the end of the year. Internet service via electricity, which mostly smaller business and home users would utilize, will take much longer to initiate.

AMSAT "Echo" Satellite to Open for FM Voice Trial Run

AMSAT-NA's new "Echo" satellite (AO-51) will be turned on for general use in FM repeat mode Friday, July 30, at about 0215z, for a trial period of about three weeks.

During that time, command stations on Earth will monitor AO-51's power budget and adjust the UHF Transmitter B (TX B) power as needed for good battery management. They'll also be watching the AMSAT Bulletin Board e-mail reflector, amsat-bb@amsat.org, for reports of how Echo is working.

"We are most interested in hearing about how well Echo hears you and how well you hear it," said the Echo Command Team--Jim White, WD0E, and Mike Kingery, KE4AZN--in an AMSAT bulletin. The digital transponder and the store-and-forward BBS, are not yet open for general use.

Initially, the AO-51 downlink transmitter will be running at about 1 W. At that power level, AMSAT says, Earth stations will need a small directional antenna to hear it. If onboard power permits, ground controllers will slowly increase the transmitter's output during the trial period.

The Echo FM voice uplink frequency is 145.920 MHz, and the downlink is 435.300 MHz. The downlink transmitter will come on when it hears an uplink signal with a 67 Hz CTCSS (PL) tone for about 1 second, and it will stay on for 10 seconds after that signal goes away. "This operation is just like a terrestrial FM repeater with a 1 second 'kerchunk' filter and a 10 second hang time," AMSAT noted. Transmitter A (TX A), now sending telemetry, generally will continue to operate on 435.150 MHz.

AMSAT points out that Echo, which launched June 29, is still "wobbling a great deal," so the downlink polarization sense will vary.

The Echo Command Team says it expects Echo will be heavily used during the first few days of the trial period. "Many stations will be trying to make a contact through Echo," they said. "It is good amateur practice and common courtesy to let everyone have a chance. Echo will hear you as well as or better than any previous amateur FM repeater satellite."

There's more information on the AMSAT Web site at, <http://www.amsat.org>.

Northern Illinois Volunteer Examiners will be holding the next Amateur Radio exam session in Rockford, IL

**on
Saturday, August 20, 2004.**

**Location:
St. Anthony Hospital
5666 E. State Street
Rockford, IL**

Exams will be held in the St Francis Room (just right of the front entrance after you enter).

Check-in is from 9:00 AM till 10:30 AM. We require two ID's with your signature on them (one must be a photo ID).

If you are a licensed amateur radio operator bring your original current license and a copy.

If you are using a CSCE for an element credit bring the original and a copy.

(We need to see the originals & keep a photocopy of each document used for element credit.)

The test fee for 2004 is \$12.00. Walk-ins welcome.

Contact Information
Randy Scott, W9HL
W9HL@arrl.net
815-877-4328

For Sale

1 Rohn 25 tilt over tower (62'8")
1 TH 6 Tri-bander antenna
1 2 meter antenna
1 Ham M rotator
Coax, guy wires etc.
Price is negotiable.

Contact Lou Rossi, N9FBC
His phone number is 815-227-5887
Lou is moving to Virginia

This issue of the HAMRAG was made possible by their article or photo submissions:
Gary Hilker, K9LJN, Gene Duncan, W9GD, Gene Harlan, WB9MMM, Randy Scott, W9HL, NJDXA, 425DXN, ARRL, Wendy Owano, KC9BCF, ARRL, AMSAT, Anthony Good

HAM RADIO IN SPACE: NEW KENWOOD ISS RADIO PROVES OUT FINE

The Amateur Radio on the International Space Station USA team has successfully completed a comprehensive checkout pass of the new Kenwood D700 radio system with Astronaut Mike Finke, KE5AIT. Utilizing ground stations in Greenbelt, Maryland, Orlando, Florida and Houston, Texas and linking team members in Kansas, Colorado, Maryland, Florida and Texas, the ARISS USA team performed voice and packet radio uplink tests to fully validate the Kenwood D700 system for future school group operations.

During the East Coast pass, the ARISS team were able to perform signal strength measurements and voice quality checks on 2 meters and 70 centimeters using the Kenwood D700 radio and the ARISS-built W A One antenna system. Mike Finke provided the on-board feedback to the team to help them understand how the radio sounds on-orbit. Finke said that the signals from the 70 centimeter uplink signals were especially loud. (ARISS)

(Continued from page 7)

In summary, power companies should be building for broadband dominance in the coming decades with viable technology such as fiber, not for the next year or two with doomed-for-obsolescence technology.

Wireless spectrum should be used for wireless applications, not to accommodate a wired network that pollutes the spectrum. The risk to critical licensed communications services is too great, the technological and regulatory foundation of BPL is too weak, and when compared head-to-head with other technologies, BPL loses on both the business model and technical capability sides. BPL appears glittery, but in reality it's Broadband Fool's Gold.

Anthony Good (RF_Engineer) is Director of Systems Engineering at a regional ISP and CLEC and is experienced in RF Engineering in Wireless ISPs (ISM/UNII), Cellular, MMDS/ITFS, licensed point-to-point microwave, and LPTV. He is an Amateur Radio operator and holds an FCC General Radiotelephone Operator License.

BPL may be the first war on interference, but it won't stop there. It is this editors belief that the next battle will be against advanced RF identification devices (Rfid). That is already in use in Rockford by UPS, Walmart, and most of the local hospitals for starters.

**Rockford Amateur
Radio Association, Inc.**

P.O. Box 8465, Rockford, IL 61126
Phone: (815) 398-2683
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Web Site - <http://rara.tripod.com>

Mailing
Address
Goes Here

We will not have a meeting on the
second Friday of August due to
Club Picnic.

August 2004

ROCKFORD AMATEUR RADIO
ASSOCIATION MEMBERSHIP
APPLICATION

Single \$30.00 Family \$35.00
Senior \$15.00 Senior Family \$20.00
Student \$15.00 HamRag Only \$10.00

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OTHER INTERESTS _____
SUGGESTIONS _____

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P.O. BOX 8465
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