



# Harrisburg Radio Amateur's Club Newsletter

HRAC meets the second Wednesday of each month at 7:00 pm at HACC, Shumaker Public Safety Center, Gate 5 on Industrial Road in Harrisburg (Elmer Time starts at 6:30PM)

## CLUB OFFICERS

### **PRESIDENT**

Tim Lehman  
KB3OZA  
(717) 982-8550  
KB3OZA@arrl.net

### **VICE PRESIDENT**

Nick Rylatt  
AA3T  
(717) 957-4688  
AA3T@arrl.net

### **SECRETARY**

Pete Lehman  
KB3WIH  
plehman0@gmail.com

### **TREASURER**

Joe Stepansky  
KQ3F  
(717) 657-9792  
KQ3F@comcast.net

### **TRUSTEE**

Steve Gobat  
KA3PDQ  
ka3pdq@juno.net

### **NEWSLETTER EDITOR**

Terry Snyder WB3BKN  
HRAC.Newsletter@Yahoo.com  
Personal Email:  
([Terry@DJTerry.com](mailto:Terry@DJTerry.com))

### **Webmaster**

Gary Cappello KV3Q  
Webmaster@w3uu.org

## From The Desk of The President.....

Well, it looks like summer is really starting with a vengeance. This past week has been hot and sticky and according to the National Weather Service, the third warmest May on record. But it has been great weather for getting out and working on antennas and other radio-related tasks that have been put off due to cold, rain and generally ugly weather. I've managed to get an 80-meter loop in the air and it seems to be working quite well. And I found the source of my S9 +20dB noise in the shack. Believe it or not, it was a computer monitor. I swapped out the monitor and no more noise! Imagine that. Well, like Ice Cube said, "Another Friday gone. Another problem solved." Anyone want to buy a slightly used thirteen-inch LCD monitor?

I'm glad that I got that stuff done, along with a good portion of my "honey-do" list because on June 7, I'm leaving for scout camp. I'll be a member of the camp staff, so I'll be gone for two months. I did manage to get them to give me the week off between Field Day and the Firecracker hamfest, so I'll be at Field Day Saturday evening and I'll be home that week to help with the last minute set-up tasks for the hamfest. We can always use more help getting things ready, so don't be bashful about coming out to help with set-up.

And speaking of the hamfest, I have confirmed that the ARRL Atlantic Division Director and Vice Director as well as the EPA Section Manager and Traffic Manager will be attending the hamfest. They will be manning an ARRL table in the trailer area and conducting a town hall meeting later in the morning. If you have any concerns, issues, compliments or worries about our hobby, don't hesitate to speak up and let them know what's on your mind. They might not be able to fix the problem, but they can certainly pass it up the line to someone who can address it and work on a solution.

That's about it for now. Think about me sweltering away in the woods at camp while you're sitting in your air conditioning and enjoying your favorite adult beverage. I hope I'll be seeing a lot of you at Field Day and the hamfest.

73,

Tim KB3OZA

**CQ  
FIELD  
DAY**



## May Meeting Minutes

The May 13, 2015 meeting of the Harrisburg Radio Amateurs Club was called to order at 1900 HRS by the president, Tim (KB3OZA).

**Secretary Report** - The minutes of the April meeting were published in the newsletter. Chuck (N3WL) made a motion to accept the minutes seconded by Terry (WB3BKN). Motion PASSED

**Treasurers Report** - Joe (KQ3F) presented the treasurer's report. Milian (KC3AYU) made a motion, seconded by Steve (KC3EUU) to accept the report. Motion PASSED

**Equipment Trustee** – The old club repeater is in storage, there was discussion of selling it at the hamfest.

**VE Committee** – The next test session will be June 20<sup>th</sup>.

**Membership Committee** – Tim (KB3OZA) reported that there are 102 members.

**Newsletter** – No Report

**Web page** – No Report

**EMCOMM** – Not Present

**DXCC** – Not Present

**Entertainment** – Tonight's entertainment was on MMSST. There will be no entertainment next month because of the hamfest. July will be the Ice Cream Social

**Hamfest** – Tim (KB3OZA) reported that the fliers were sent out and everything is ready to go. Terry (WB3BKN) will request media coverage.

**Field Day** – The club will operate 2 stations on generator power as well as a VHF/UHF bonus station. Setup is at 10am on Saturday. We should be on the air by Noon.

**Elmer Time** – This month Terry (WB3BKN) did a presentation on operating antique radios.

**Old Business** – The club purchased a trailer for mobile operations, we are still waiting for the registration.

**New Business** –

- There was a motion to sponsor an award for the PA QSO party (\$40) made by Terry (WB3BKN) seconded by Richard (KB3YRC). Motion PASSED.
- There was also discussion of being the bonus station for the PA QSO party.
- Nick (AA3T) proposed purchasing a new vertical antenna for around \$230.
- The club will try to sell the old beam in storage from the Red Cross at the Hamfest.
- The club will conduct an outing on the old section of PA Turnpike on August 22<sup>nd</sup>.

**Good of the Club** –

- Congratulations were given to Steve (KC3EUU) for his new license.



# Weekly HRAC Net

The weekly information net is held every Wednesday at 8:00 PM on the 146.760 repeater, except for the second Wednesday of the month, which is club meeting night.

The next VE Testing session will be on Saturday June 20, 2015 in the HACC Shumaker building at Gate 5 on Industrial road, Harrisburg, PA. Pre-Registration is required. Please arrive by 8:30am

Contact: Steven Gobat [717-938-6943](tel:717-938-6943) Email: [KA3PDQ@arrl.net](mailto:KA3PDQ@arrl.net).

This Month's test session is June 20, 2015 9:00AM

We also will have a session on **July 4th at the Hamfest.**

The June 20th session is at HACC in the Shaffer public safety building in the cafeteria as usual.

VEs please arrive by 8:30 AM, this is the last session for us using the General question pool.

**On July 1 the new General poll will be in effect.**

Hope to see you there.

KA3PDQ, Steven

Please send any articles for the newsletter to [hrac.newsletter@Yahoo.com](mailto:hrac.newsletter@Yahoo.com)



=====

I welcome subjects for the Elmer Time sessions from anyone, including our seasoned radio amateurs. Subjects should be something to expand on questions in the license exam that may need a clearer understanding. Either email the ideas to me at [Terry@DJTerry.com](mailto:Terry@DJTerry.com), or text at 717-979-9515.

Tnx 73

Terry WB3BKN

## Two Great Amateur Radio Events in October

Don Kunst, W3LNE



The New Birth of Freedom Council will hold their Wizard Safari October 2, 3, 4 at 1073 Accomac Road, Hellam, PA, York County. This event is only held every 4 years and is the oldest and largest Scouting event run by the New Birth of freedom Council. <http://newbirthoffreedom.org/>

You may remember at the Gettysburg 150 I had set up a Ham Radio station near the medical tent for Scouts and Scouters as well as our Amateurs to talk around the world. I have received permission to plan to do this again at the Wizard Safari, but I need Amateurs to help staff it. The goal will be to use the K2BSA/3 call sign as a special event station and let the world hear about the great time we are having at the Safari and to introduce Scouts to Amateur Radio, the Merit Badge and have some fun. I especially hope that our Scouts and Scouters who are

Amateur Radio Operators will support this event. In keeping with the event I hope to have Telegraph demonstration.

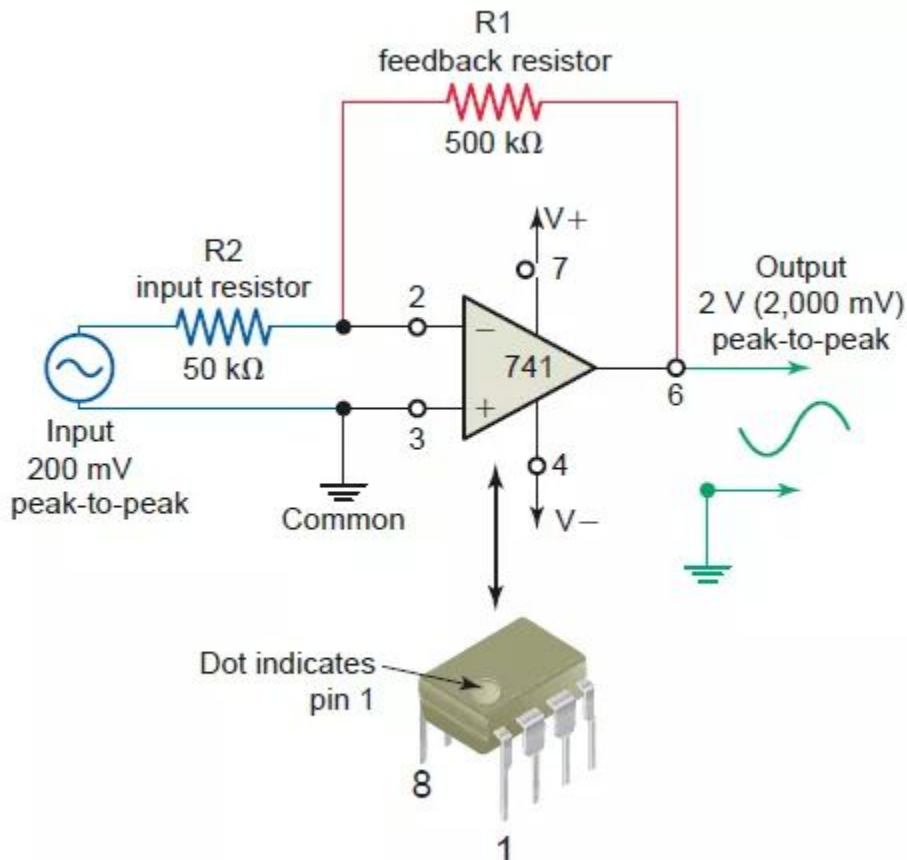
If you or your club are interested in helping, please contact me by email.



The 6<sup>th</sup> Annual JOTA, Jamboree On The Air, is October 16, 17, 18 in Upper Dauphin County. This weekend of camping gets bigger every year, with some exciting new activities this year. We still will have the Radio Merit Badge and tons of fun. If you haven't attended this event in the past years, it is the one to put on your calendar for the fall. <http://www.k2bsa.net/jota/>

Please let me know if you are interested in attending or staffing this great weekend. This is open to all Troops and Venture Crews in the Council.

I can be reached via email at: [w3lne@arrl.net](mailto:w3lne@arrl.net) or by phone at: 717 712-9116



# FCC Eliminates Amateur Radio Vanity Call Sign Regulatory Fee

05/22/2015

The FCC is eliminating the regulatory fee to apply for an Amateur Radio vanity call sign. The change will not go into effect, however, until required congressional notice has been given. This will take at least 90 days. As the Commission explained in a *Notice of Proposed Rulemaking, Report and Order, and Order (MD Docket 14-92 and others)*, released May 21, it's a matter of simple economics.

"The Commission spends more resources on processing the regulatory fees and issuing refunds than the amount of the regulatory fee payment," the FCC said. "As our costs now exceed the regulatory fee, we are eliminating this regulatory fee category." The current vanity call sign regulatory fee is \$21.40, the highest in several years. The FCC reported there were 11,500 "payment units" in FY 2014 and estimated that it would collect nearly \$246,100.

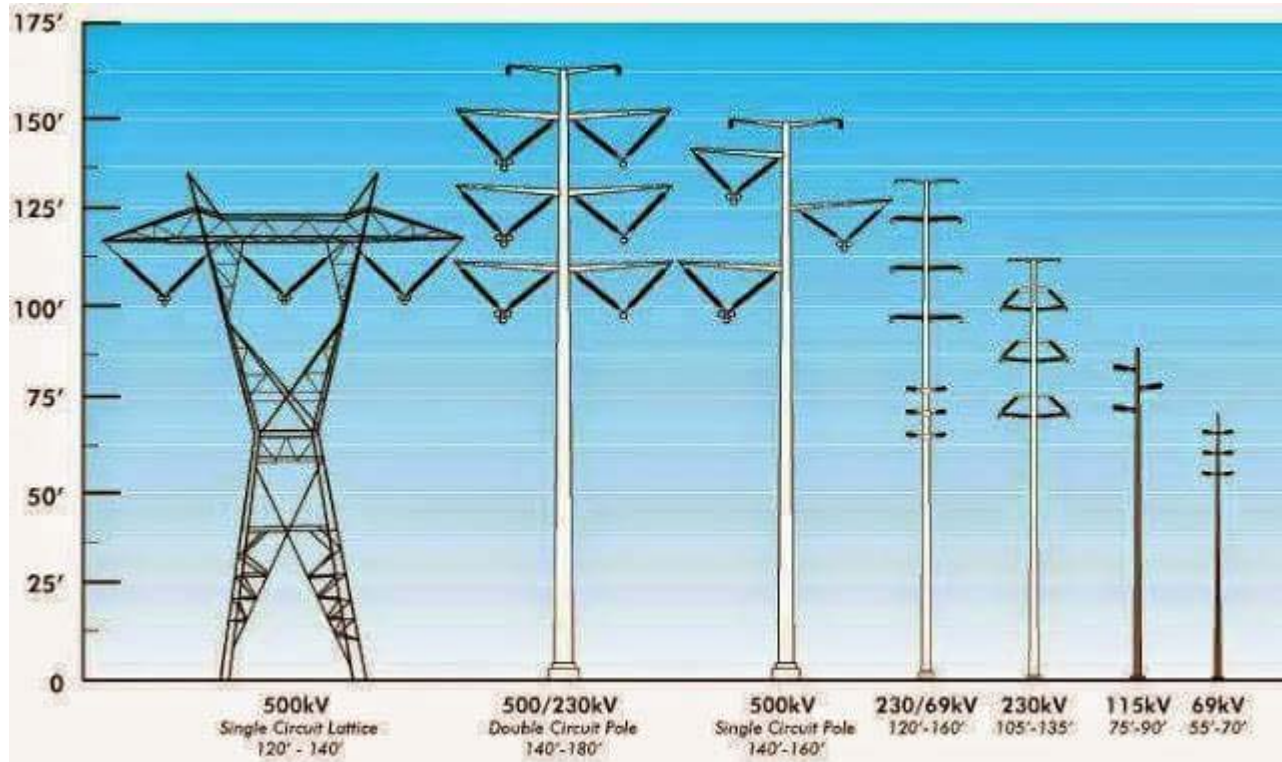
In its 2014 *Notice of Proposed Rule Making (NPRM)* regarding the assessment and collection of regulatory fees for FY 2014, the FCC had sought comment on eliminating several smaller regulatory fee categories, such as those for vanity call signs and GMRS. It concluded in the subsequent *Report and Order (R&O)* last summer, however, that it did not have "adequate support to determine whether the cost of recovery and burden on small entities outweighed the collected revenue or whether eliminating the fee would adversely affect the licensing process."

The FCC said it has since had an opportunity to obtain and analyze support concerning the collection of the regulatory fees for Amateur Vanity and GMRS, which the FCC said comprise, on average, more than 20,000 licenses that are newly obtained or renewed, every 10 and 5 years, respectively.

"The Commission often receives multiple applications for the same vanity call sign, but only one applicant can be issued that call sign," the FCC explained. "In such cases, the Commission issues refunds for all the remaining applicants. In addition to staff and computer time to process payments and issue refunds, there is an additional expense to issue checks for the applicants who cannot be refunded electronically."

The Commission said that after it provides the required congressional notification, Amateur Radio vanity program applicants "will no longer be financially burdened with such payments, and the Commission will no longer incur these administrative costs that exceed the fee payments. The revenue that the Commission would otherwise collect from these regulatory fee categories will be proportionally assessed on other wireless fee categories."

The FCC said it would not issue refunds to licensees who paid the regulatory fee prior to its official elimination.



# The Controversy Behind the World's First Digital Computer

By Angela Rolls  
Managing Editor

**John Vincent Atanasoff** was born in 1903 to a family that highly valued education and hard work and John excelled in his studies. He graduated high school at age 15 and went on to receive a Bachelor of Science in electrical engineering with a straight A average. His PhD in theoretical physics wouldn't be the end of his educational journey, he was a professor of mathematics and physics at **Iowa State College** when his obsession to create a device that was able to quickly and accurately solve large, complicated equations intensified.

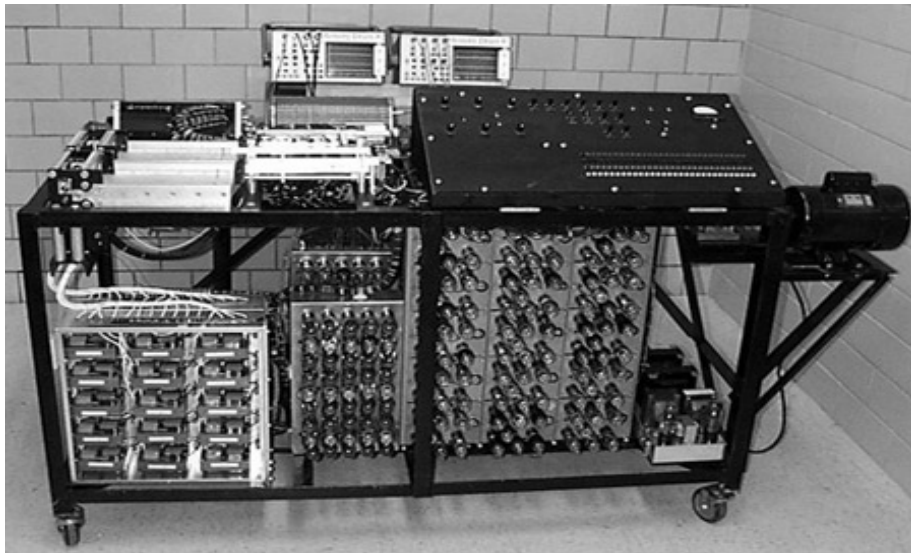
During his graduate studies he had heavily relied on the Monroe Calculator; he understood its limitations and wanted to create a better device but found himself unable to clearly decipher his thoughts. One evening in 1937, frustrated with the inability to sort his cogitations into a workable design, he took off on a drive... but not just any drive. This particular drive would end up changing the world as we know it.

At the time Iowa was a dry state and Atanasoff wanted a drink to abolish his frustrations. He left without a particular destination in mind and ended up over 200 miles away in Rock Island, Illinois, where he was finally able to order himself a cocktail. As he sat down he realized the drive had relieved his mind of clutter. Four separate ideas began to intersect and he scribbled his intellections on a cocktail napkin. He was later quoted, stating, "It was at an evening of scotch and 100 mph car rides, when the concept came..."

Electricity would be used for the media to provide speed and the binary number system would simplify the computational process. Computing with direct logical action would increase accuracy and allow memory and computation to remain separate and using regenerative memory would reduce the cost of building the machine.

Atanasoff presented his idea to Iowa State College and was provided with a grant for the creation of his device. In 1939 he hired a gifted graduate student, Clifford Berry. Berry had also accelerated his early education; he was completing his graduate studies in physics when he was hired by Atanasoff.

Together the two prototyped the Atanasoff-Berry Computer (ABC) in the fall of 1939 and continued improving their design through 1942, when Atanasoff left for a position in the Navy. Berry also left for a defense related job soon after Atanasoff's departure. Sometime after the two had left, Iowa State College dismantled the project without informing Atanasoff or Berry.



*"Atanasoff Berry Computer". Licensed under Public Domain via Wikimedia Commons*

The ABC weighed over seven hundred pounds and could solve up to 29 simultaneous linear equations. It had no central processing unit (CPU), but used 280 dual-triode vacuum tubes for digital computation. Its memory contained 1600 capacitors organized into 32 bands that rotated on a common shaft once per second within a pair of drums. This allowed the ABC to have a computation speed of 30 actions per second. Data was represented as 50-bit binary numbers. Some of its design concepts are still used in computing devices today.

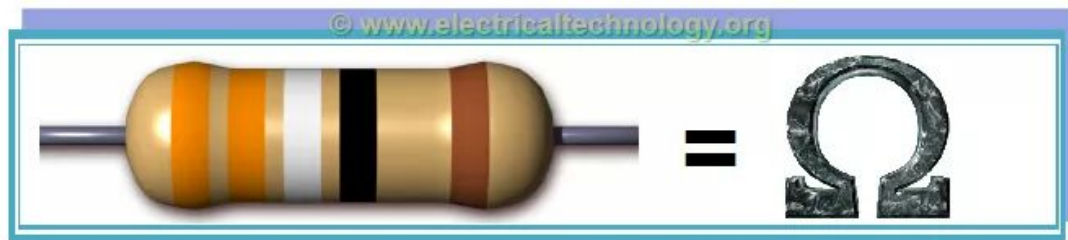
Computer continued

Iowa State College had hired a patent lawyer, Richard R. Trexler, to help process the patent, but somehow it was never completed, the reason behind which still remains a mystery. In 1964, the Electronic Numerical Integrator and Computer (ENIAC) was granted a patent and was recognized as the first digital electronic computing device. Its inventors John Mauchly and J. Presper Eckert received the credit for its creation, until a federal court case ruling in 1973, determined that, "Eckert and Mauchly did not themselves first invent the automatic electronic digital computer, but instead derived that subject matter from one Dr. John Vincent Atanasoff." The ENIAC's patent was therefore invalidated.

It wasn't until Atanasoff testified in the trial (Clifford Berry did not testify, he had suddenly died in 1963) that it was revealed that Mauchly had spent significant time and had several detailed discussions with Atanasoff and Berry about the ABC. Mauchly had even been Atanasoff's houseguest for five days in 1941 during which he had access to the ABC's manual.

In the end, Atanasoff did not make any money off of his invention, but he was rightfully credited as being the developer of the world's first digital computer. So there you have the complicated history of the world's first digital computer.

Angela Rolls holds a Bachelor of Science in Communication Studies from **Grand Valley State University** and is the Managing Editor at Jameco Electronics. Originally from **Michigan**, she currently resides in **California's Silicon Valley**. Her interests include animals, traveling, writing, science and photography.



**IEEE Symbols (Old)**      **IEC Symbols (New)**

Institute of Electrical and Electronics Engineers		International Electrotechnical Commission	
<b>Resistor</b> (General Symbol)	<b>Trimmer Resistor</b>	<b>Resistor</b> (General Symbol)	<b>Trimmer Resistor</b>
<b>Potentiometer</b>	<b>Thermistor</b>	<b>Potentiometer</b>	<b>Thermistor</b>
<b>Rheostat</b> (Variable Resistor)	<b>Photoresistor</b> (LDR)	<b>Rheostat</b> (Variable Resistor)	<b>Photoresistor</b> (LDR)

**Resistor & Different Symbols of Resistors**

# Personalized Items Make the BEST Gifts!

(And who says you can't give yourself a gift...)

**EMBROIDERY - SCREEN PRINTING - VINYL  
HEAT TRANSFER - SUBLIMATION**

T-SHIRTS AND OTHER APPAREL, HATS, MUGS, VANITY PLATES,  
PATCHES, NAME PLATES AND MORE



Visit us online at [www.shopIBD.com](http://www.shopIBD.com) for ideas  
then give us a call at  
**717-885-2696** or **888-265-0812 x101**  
or email [geanne@shopIBD.com](mailto:geanne@shopIBD.com)  
for quotes and personalized service.

## Electrical Units

Quantity	Electrical unit	Symbol	Derived unit
Potential	Volt	V	W/A
Resistance	Ohm	$\Omega$	V/A
Charge	Coulomb	C	A*s
Capacitance	Farad	F	A*s/V
Electric field strength		V/m	
Electric flux density		C/m <sup>2</sup>	
Magnetic flux	Weber	Wb	V*s=N*m/A
Inductance	Henry	H	V*s/A=N*m/A <sup>2</sup>
Magnetic field strength		A/m	
Magnetic flux density	Tesla	T	Wb/m <sup>2</sup> =N/(A*m)

## What is legal, and what is NOT legal for our Chinese radios?

John, KD8DVR

Ask ten people, get ten answers.

OK... A radio needs Part 95 acceptance for FRS, GMRS, MURS. No Baofeng has this. I'm aware of only ONE Wouxun model that is approved for Part 95(a) GMRS use. Anytone has two models that are pending GMRS and MURS certification. Currently, legal issues have suspended the previous certification.

For commercial use, radios need Part 90 approval. Most Baofengs HAVE this. Many Wouxun radios have this. A few Puxing radios have this. Most Anytone radios have this. GMRS radios need Part 95A certification. MURS radios require Part 95D certification. FRS radios require Part 95B certification. Check on the back of the radio for the "FCC ID" sticker. This FCC ID can be looked up to see what rule parts the radio is certified for. An FCC ID label is required to be placed on the back of the radio.

SOME commercial radios have more than one rule part. You'd see Part 90 AND Part 95(a). Then these would be legal on GMRS. Not FRS, Part 95(b) or MURS Part 95(d)? Because FRS radios have a maximum of 500 mw and non removable antennas. Murs has a 2 watt maximum, and these radios exceed that on high power. Of course, you then have the field programmability, which oddly enough even violates the Part 90 approval... figure that one out!

For Amateur radio use, NO Part 97 approval is required. I don't even think there is an equipment certification for Part 97. Part 97 primarily covers operating rules, although there are some equipment rules. Since amateur operators can use \*almost\* all equipment, other rule parts dealing with equipment come into play. Part 97 does cover proper engineering practices that are required to make sure equipment is within tolerance.

For amateur equipment, Part 15 largely applies on VHF and UHF radios. This is primarily for radios with a scanning function, to certify the radios cannot monitor cellular, as well as receiver products interfering and receiving interference from consumer products.

IF a radio has, say, Part 90 approval, then it automatically has the applicable Part 15 approval, as the technical requirements meet Part 90 specs.

If you take your Icom, Kenwood, etc., radios and enter the FCC ID into the FCC database, you will see it likely listed as "Part 15 scanning receiver." That's why you see some new equipment like on Universal being listed "This radio has not received FCC approval." Not waiting for Part 97 approval; but waiting for that Part 15 receiver compliance.

Most Part 90 radios.... Which are commercial radios, can be used on the amateur bands legally. That's why all these Baofengs, Wouxuns, Puxings, etc., have taken off. Wouxun started it off by being the first Chinese radio to get FCC approval. All these other radios floating around at the time had no approval. Of course, when this hit the net with a firestorm and sales took off, other manufacturers finally got into the fray, and we now have the mess we are in today.

You see all the hams with Motorola, Midland, and other radios on the ham bands. They are Part 90 radios, which makes them legal for amateur operators, since this Part 90 certification includes the Part 15 approval as required for commercially manufactured equipment.

What about all those Quangshengs, and oddball brands. Forget it. If they have no FCC ID, they are not legal for use on ANY radio service in the USA.... Including amateur.

This will not, by any means, stop the debate. If I get one person to consider the rules, then that is a victory. I will hear 100 different reasons why I am wrong. I do not care. I could spoon feed each and every applicable regulation, and draw pictures. I'd still be doubted. At any rate, at least I'd cause a pause to consider.

The point, really, is to make people stop and consider the **fact that ALL radio services have rules, regulations and technical standards.** Not all radios will work with other radios. Very few can be used by the general public.

Note: the FCC approval process only applies to commercially manufactured equipment. Homebrew stuff is exempt. On my web page below, I have some detail in the exact provisions of the rules:

<http://kd8dvr.dodropin.org/part15>

Of course, feel free to consult the FCC regulations if you don't want to take my word on this:

<https://www.fcc.gov/encyclopedia/rules-regulations-title-47>

John, KD8DVR Ohio Repeaterbook Admin.



# NTS Digital - Getting Started

Greg Bennett KC1CIC

If you have been a participant on the Eastern MA 2 Meter Traffic Net for any length of time you may have heard references about a "Bulletin Board" that messages are being posted to. The bulletin board is part of a digital radio system used to pass traffic. It is known as the National Traffic System - Digital or NTSD for short.

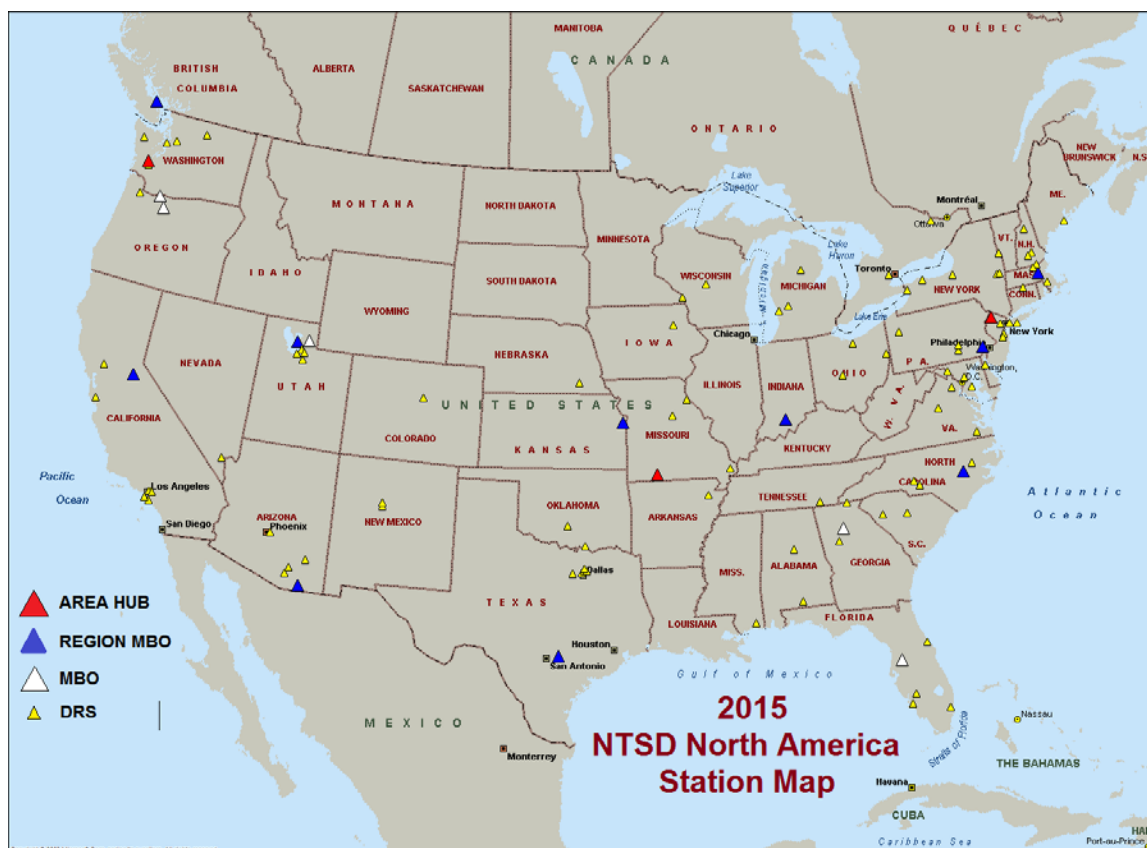
Working with NTSD can be rewarding and fun. It takes the operator in to new areas of the hobby that he or she may not be familiar with. This article is meant to answer some of the basic questions you may have about NTSD as well as things to consider before setting up your station for NTSD.

## NTSD Overview

NTSD consists of a cadre of fully automated store and forward bulletin board type systems known as Mail Box Operations (MBO) or hubs. These operate on HF using high speed protocols such as Pactor or VHF using packet on a 24/7 basis moving formal message traffic.

You may hear the terms MBO and BBS used during your work with NTSD. MBO typically refers to HF Pactor operations while BBS refers to VHF packet operations.

The goal of NTSD is to move that traffic via digital means to the closest point of delivery. At that point it is then removed from the automated system by operators known as Digital Relay Stations (DRS). The DRS then take this traffic to the nets at region, section, and local levels for any additional relay and ultimate delivery.



Copyright © 2003 Microsoft Corp. and/or its suppliers. All rights reserved.

## Your Objective

Before getting in to the discussion of setting up your station for NTSD, it is helpful to understand what your objective is. Your objective is to get your station to be able to communicate to the KW1U Bulletin Board. This can be done via HF or VHF or both. Your station may connect directly with the KW1U Bulletin Board or you may connect via a Digital Repeater also known as a digipeater.

## Digital NTS

NTSD requires the use of a hardware device known as a Terminal Node Controller (TNC) or TNC. Using cables, the TNC connects between your computer and your radio allowing you to handle traffic digitally using software on your computer. If you are committed to NTS and want to add digital to your list of skills, a TNC can be had for as little as \$15.00. More on that later.



*A type of TNC*

For most of us, our role in the NTSD system is as a Digital Relay Station (DRS). If you are a member of the ARRL you can receive an appointment as an ARRL Digital Relay Station. It won't get you a cup of coffee but it is a nice skill to add to your NTS and Amateur resume!

## Considerations for running NTSD

There are factors that you need to consider and be prepared for before setting your station up for NTSD. There are also some small expenses involved in the purchasing of cables, etc.

### 1. Station Grounding

Proper RF grounding for your station is critical to operate digital. The TNC you receive may not have a ground connection. If that is the case, find a screw on the chassis, remove the paint around the screw to the bare metal and use that as the attachment point to your RF ground system.

### 2. Frequencies to Use

Connecting to the KW1U Bulletin Board can be accomplished directly from your station on various HF or VHF frequencies. If a direct connection is not possible there are digipeater available to connect through. Digipeater's are used for VHF packet only.

Ask KW1U for the frequencies used for the Eastern MA NTSD system. It is a good idea to monitor them for an evening or two to see if you can hear any traffic (sounds) and how strong the signal is. That may influence your decision on the best frequencies to use and how to connect.

### 3. Understanding your Radio

Having a good understanding of your radio is very helpful. If you don't have the manual for your radio, go out to the web and try to download a copy.

Depending on the software option(s) you use, your radio will need to be put in a data mode. On HF for example, your radio may need to be in "Data-USB" mode but for VHF it may need to be in "Data-FM" mode. The radio's manual will come in handy for this.

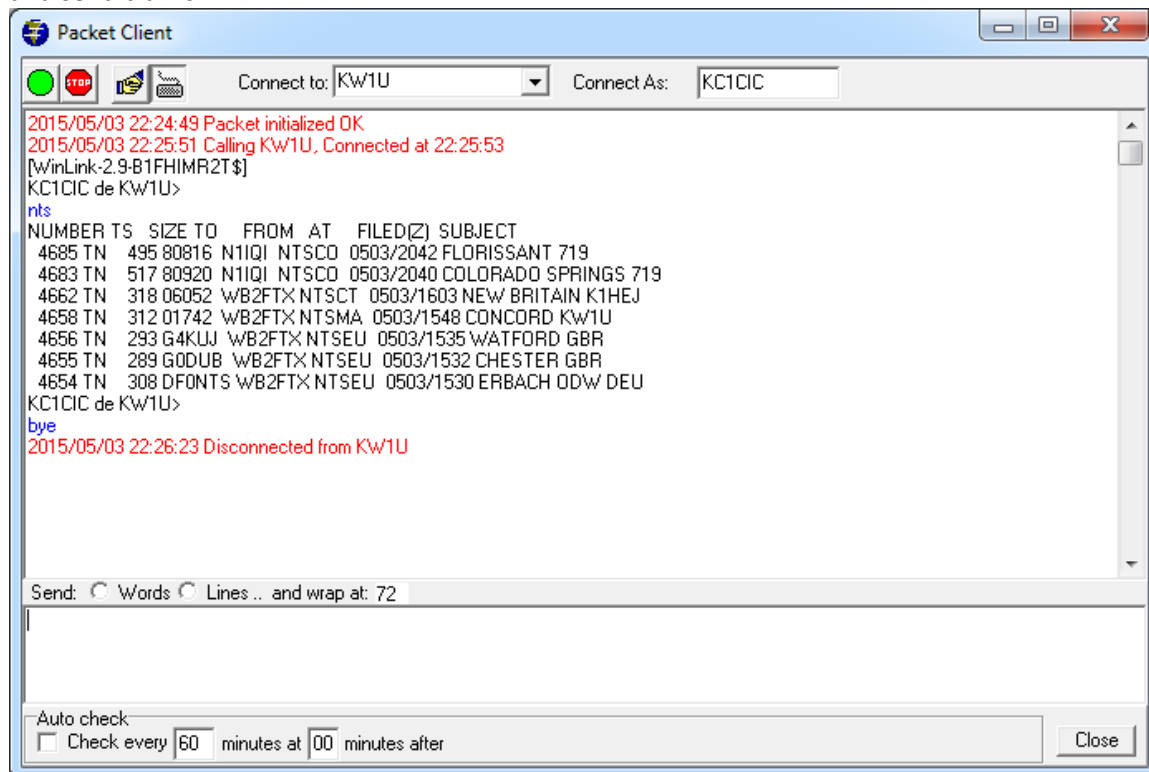
### 4. Your Computer (Mac/PC/Linux)

You do not need a powerful computer for NTSD but it does need to be reliable. Part of the NTSD configuration requires the installation of software packages - all of which are free. What software you install depends on how you operate your station.

AirMail is the software program recommended for your NTSD communications sessions. With AirMail you have the ability to connect to the MBO via HF or BBS via VHF. AirMail can also be used to send emails by radio. Some areas incorporate this function in their NTSD operations. If yours does not, it is yet another fun aspect of amateur radio that you could experiment with.

AirMail provides a connection between your computer via the serial cable and the TNC which controls your radio.

Using AirMail you will initiate a connection to the KW1U BBS. Once connected you will issue commands to list, accept and send traffic.



View of AirMail Packet Client listing NTS Traffic

### Moving Forward

If you've gotten to this point in the article and are still excited about becoming a Digital Relay Station then you can request a free TNC through the NTS Loaner Program. The TNC is yours to keep for as long as you remain active in NTS. There is a \$15.00 flat fee to ship the TNC to your location. New TNCs retail for several hundred dollars so this is a real bargain. Please consider including a donation with the shipping fee to help keep TNCs available for other stations.

You must send an activity log in each month of your Digital Traffic activities. This log is separate of the one you may keep with your regular voice or CW message handling. Failure to send in your Digital Activity log could nullify your TNC loaner agreement.

### What you will need

To start the process of setting up your station send an email to David Struebel at [wb2ftx@optonline.net](mailto:wb2ftx@optonline.net) David is the Eastern Area Digital Coordinator for NTSD.

David will reply to you with the type of TNC he has available and what kind of cables you will need to purchase for it. He will also send you the links to order the specific cable(s) you will need.

You typically need to purchase:

- \* The AC power adapter for the TNC
- \* A serial cable and USB adapter if your computer does not have a 9-pin serial port
- \* A control cable specific to the TNC assigned to you and the make and model of radio you will be using.

This was about \$45.00 in total as I recall.

David will also send you links to the software he would like you to install as part of your stations initial NTSD configuration. The software packages are *Skype* and *Team Viewer*. Both are free. You will need to create a *Skype* account.

For *Skype* you do not need to purchase a camera. It is just a convenient way for David to communicate with you. *Team Viewer* is a way for David to directly access your desktop to help set up the software program(s). Specifically he needs access to the terminal emulator program you had installed.

### In Conclusion

I hope you have found the information in this document useful in deciding and preparing to configure your station NTSD. If you have any questions that I can answer before requesting your TNC please contact me or Marcia. I would like to thank Marcia Forde KW1U and David Struebel WB2FTX for their advice, feedback and support in getting this document published. It is very much appreciated!

Greg Bennett  
KC1CIC

---



### Special Event Scheduled for August 22, 2015

The club will be operating a special event from the Breezwood Tunnel on what was at one time the PA Turnpike. The tunnel, along with several others, have been abandoned and bypassed for quite a few years. They are now bike trails, or Zombie hangouts... If you would like to be part of this event, contact Terry (WB3BKN) [Terry@DJTerry.com](mailto:Terry@DJTerry.com), or call for info 717-979-9515. There will be a special QSL card for the event.

---



## Monthly Ham Radio Lunch

The last Thursday of each month there is a Ham Radio Lunch at the "Old Country Buffet" at noon (unless it is a major holiday).

This restaurant is located on Route 22 in Colonial Park in the vicinity of Value City Furniture, K-Mart and Home Depot.

It's a great way to meet new people!

## From the Editor's Desk

I get a kick out of special event stations. I was driving back from Ocean City MD on Sunday after a doing a beach wedding over the weekend, working the ships special event stations on 40 meters and got quite a few. I was just about to get on the Bay Bridge near Baltimore when I came across a station that just blasted in. There were no more numbers on that S meter, it was so strong. As you may imagine, the ship was in the Baltimore Harbor. He said I was 40 over S-9, and then I told him where I was. I got about 5 ships from that location to the top of the beltway. Mobile HF is a blast. My van may look odd with the antennas, but it works.

I welcome and encourage submissions to be published. I am just asking for you all to understand and follow a few guidelines. As an editor, my job is to compile stories as submitted to me, and to check for misspelled words, and grammar problems. Your job is to submit a ready to print article. If you have pictures, please add them to your email and they will be placed into the article. If your story is only fragmented sentences, or just copy points, it will be returned to you to correct. This is not because I am a bad guy, but because it takes valuable time to decipher the meaning intended. Please write any articles from the viewpoint of a reader who knows absolutely nothing about the subject. This includes including the meanings of acronyms.

Please do not wait until a day before publication date to submit things. If that is done, it will not be included. Most, if not all regular information is known by the middle of any month, and should be submitted immediately. If you are writing an article about an event, write it while the event is fresh in your mind, and submit it. Don't wait until the end of the month. Send articles to [HRAC.newsletter@Yahoo.com](mailto:HRAC.newsletter@Yahoo.com).

Tnx 73

Editor: Terry WB3BKN

Proofer: Jim WF3J





COMMONWEALTH OF PENNSYLVANIA  
OFFICE OF THE GOVERNOR  
HARRISBURG

THE GOVERNOR

**GREETINGS:**

It is my pleasure to join with amateur radio operators across the commonwealth to support the week of June 21 through June 28 as Amateur Radio Week.

Amateur Radio Operators, or Hams, volunteer their time and energy to provide the commonwealth with vital supplemental communications in times of natural disaster, local emergencies, and public events. The Commonwealth of Pennsylvania thrives when its citizens are willing to contribute their knowledge and skills to help their communities and the causes that are important to them. Hams exemplify the rich tradition of Pennsylvania as a commonwealth that believes in support and cooperation among its residents. I commend the men and women who work tirelessly to keep our citizens engaged and informed. I am honored to recognize the integral role that our amateur radio operators have during times that require the dissemination of up-to-date and accurate information.

As Governor, and on behalf of all citizens of the Commonwealth of Pennsylvania, I am delighted to support June 21-28, 2015 as Amateur Radio Week. Please accept my best wishes for continued success.



*Tom Wolf*  
TOM WOLF  
Governor  
June 21-28, 2015

## The National Electronics Museum



I recently had the occasion to visit the National Electronics Museum, which is in Linthicum Heights, MD. It is very close to the Baltimore-Washington National Airport. From Harrisburg to the museum is about 90 miles. Driving to there is pretty easy. It is down I-83 until you hit I-695. Take the western route of I-695, around Baltimore and you will exit I-695 where it meets Maryland SR-295. From there, it is only a few miles from the museum. The address is 1745 West Nursery Road, Linthicum Heights, MD 21090. The museum is on a major road, but you can't see sign until you are close. If keep your eyes open, you won't be able to miss it because there several large radar antennas and an anti-aircraft gun sitting on the lawn around the building.

Admission is only \$5.00. They have a few items for sale in the front lobby, but nothing really neat. Pick up a map and a few more dollars gets you a soft cover museum guide. And then you are off, into the museum. I would characterize the museum as small, but jammed with some really cool stuff. But that is because I am retired Air Force and they had some previously classified stuff on display.



They have showcases of WWII radar and radio equipment, including a WWII radio van and some info about the surveillance radar that actually detected the Japanese aircraft that attacked Pearl Harbor. They have info on several types of radars developed by the British, Americans, and Germans. They even have a couple of airborne radars, carried by WWII fighters. That is in what they call the Early Radar Gallery.



They have info on several types of radars developed by the British, Americans, and Germans. They even have a couple of airborne radars, carried by WWII fighters. That is in what they call the Early Radar Gallery.

The museum has a very respectable collection of modern day electronic warfare and countermeasures equipment. Some of most famous jamming pods and chaff dispensers used to protect USAF aircraft during the Cold War are on display. They have a full sized (I think it is full size) cross section of the radar antenna from an E-3 AWACS aircraft. I never realized how complex that antenna is. Look at it closely and you will see what I am talking about.



But there is more! I found a whole bunch of stuff that a ham would go nuts about. First off, they have a very good collection and old and not so old vacuum/radio tubes. All kinds and shapes. Some I have never seen before, but to be honest, I was never really interested in tubes. But it is hard, not to stop and check this collection out. They have a reproduction of an early amateur "spark gap" station. They have a collection of several different telegraph keys. They have a working telegraph station that you can interact with. How good do you sound on the early equipment? They have a corner devoted to the AMSAT and a model of one of the early AMSATs is hanging from the ceiling.

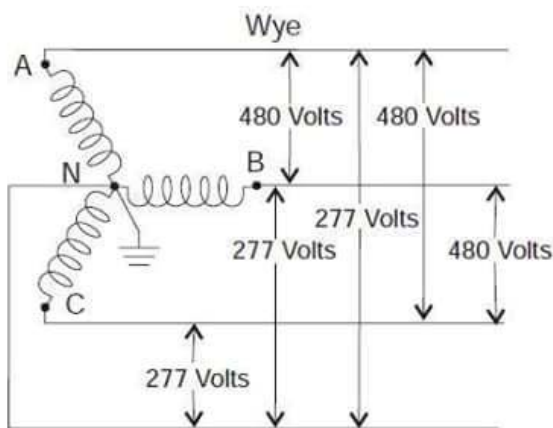


And they have an actual, working ham station. Inside the museum. No, you can't fire it up. K3NEM is set up, ready to TX. I don't know how often they use it but it well equipped. There is an iCom IC-761, a Yeasu FT-1000MP, Yeasu FT-970, a Kenwood T-281, and a Kenwood R-1000 RX. There is a computer station and two wall displays of some of their more interesting QSL cards. They also look like they are set up for slow scan TV TX. There is another call sign hanging on the wall, W3GR. The Historical Electronics Museum Amateur Radio Club apparently operates in the museum.

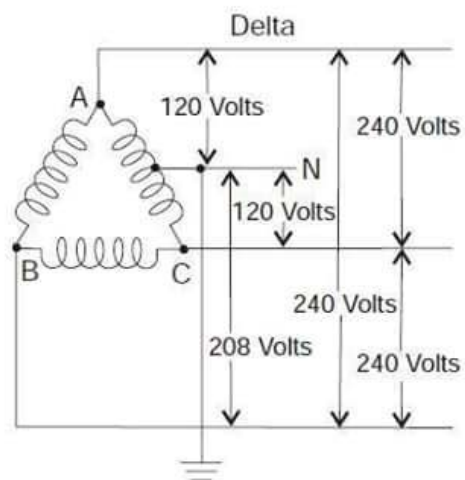
Anyway, if you haven't been there yet, I recommend it. It is not a long trip and they have some pretty interesting radio equipment there.



Steve Hensley  
KC3EUU@arrl.net



- A - B 480 Volts
- B - C 480 Volts
- C - A 480 Volts
- A - N 277 Volts
- B - N 277 Volts
- C - N 277 Volts



- A - B 240 Volts
- B - C 240 Volts
- C - A 240 Volts
- A - N 120 Volts
- B - N 120 Volts
- C - N 120 Volts

# HRAC MEMBERSHIP APPLICATION

MAIL TO:  
Tim Lehman (KB3OZA)  
PO Box 453  
Hummelstown, PA 17036  
717-982-8550

Make checks payable to HRAC—Membership is \$15.00 (\$7.50 if over 65) per year.  
Family Membership is \$25 (Hams must reside in the same household)  
Dues end December 31st.

NAME \_\_\_\_\_ CALL \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE \_\_\_\_\_ E-MAIL \_\_\_\_\_

ARRL Member: Y \_\_\_\_\_ N \_\_\_\_\_ \* YEAR FIRST LICENSED \_\_\_\_\_

SIGNATURE \_\_\_\_\_

I agree to abide by the guidelines of the membership and The Harrisburg Radio Amateur's Club, Inc.

## Ohm's Law

$$E = IR \quad I = \frac{E}{R} \quad R = \frac{E}{I}$$

## Joule's Law

$$P = IE \quad P = \frac{E^2}{R} \quad P = I^2R$$

Where,

E = Voltage in volts

I = Current in amperes (amps)

R = Resistance in ohms

P = Power in watts

W3UU - Harrisburg Radio Amateurs' Club 43<sup>rd</sup> Annual

Saturday JULY 4<sup>th</sup> 2015



Eastern Pennsylvania Section

Convention

&

FIRECRACKER

Electronics Expo and Hamfest

“The Harrisburg PA Electronics Expo and Hamfest”

Harrisburg Area Community College

Fire Training Grounds

3599 Industrial Road, Harrisburg, PA

- ◆ Covered indoor **Commercial Tables** Available
- ◆ **Largest Tail Gate / Electronic Flea Market in Central PA**
- ◆ **Hundreds of tailgate spaces available**
- ◆ New and refurbished equipment dealers on site
- ◆ **ARRL Sanctioned Hamfest / EPA Section Convention**
- ◆ **Great Food (Breakfast and Lunch)**
- ◆ Meeting room available for clubs and discussions
- ◆ **DXCC & WAS** cards checked on site until **10:00 am**
- ◆ **VE Testing on site at 11:00 am (Pre-registration required. Check [www.w3uu.org](http://www.w3uu.org) for details)**

W3UU  
146.16/76 MHz  
PL 100 Hz

Map on Reverse side  
of this flyer

**Special Event  
Station  
In operation at the  
Convention**

**General Admission:** \$5.00 (Non ham XYL & kids under 12 free)

**Tail Gating:** \$5.00 per space

**Tables:** \$12.00 each before June 1  
\$15.00 on or after June 1

**General Admission: 8:00 AM**

**Dealer Setup: Hamfest Day 6:00 AM**

**Prior Day 6:00 PM - 9:00 PM (Strictly enforced)**

For further information contact:  
Web Site: [www.w3uu.org](http://www.w3uu.org)

Table Sales  
Joe Stepansky (KQ3F)  
KQ3F@comcast.net  
717-329-1906

General info  
Tim Lehman (KB3OZA)  
PO Box 453  
Hummelstown, PA 17036  
[KB3OZA@arrl.net](mailto:KB3OZA@arrl.net) 717-461-3398

Directions to the Hamfest from rt. 81 (watch for signs):

**Located just north of Harrisburg, Pa.**

Rt. I-81 to Exit 67 (Follow signs to Farm Show Rt. 22 East)

Follow Rt. 22 about 3000 ft, Turn RIGHT at light

Continue on Wildwood Park Drive and road will become Industrial Road. Hamfest / Convention is 3/4 mile on RIGHT

**3599 Industrial Road, Harrisburg, Pa 17110**

40.303645,-76.888379 (Gate 5)

**Represented on this map and picture by the Green B and arrow the "A" is Exit 67**



From Rt 83 and points south:

Exit 43 (Second Street, Harrisburg)

Follow ramp to light at Paxton St. and turn RIGHT

At next light (Cameron Street) turn LEFT

Follow Cameron street to Wildwood Park Drive, at Farm Show, Turn Left

Continue and road becomes Industrial Road, Hamfest is ¾ mile on Right

Mapping/APRS Coordinates

Hamfest: **40.303645,-76.888379**