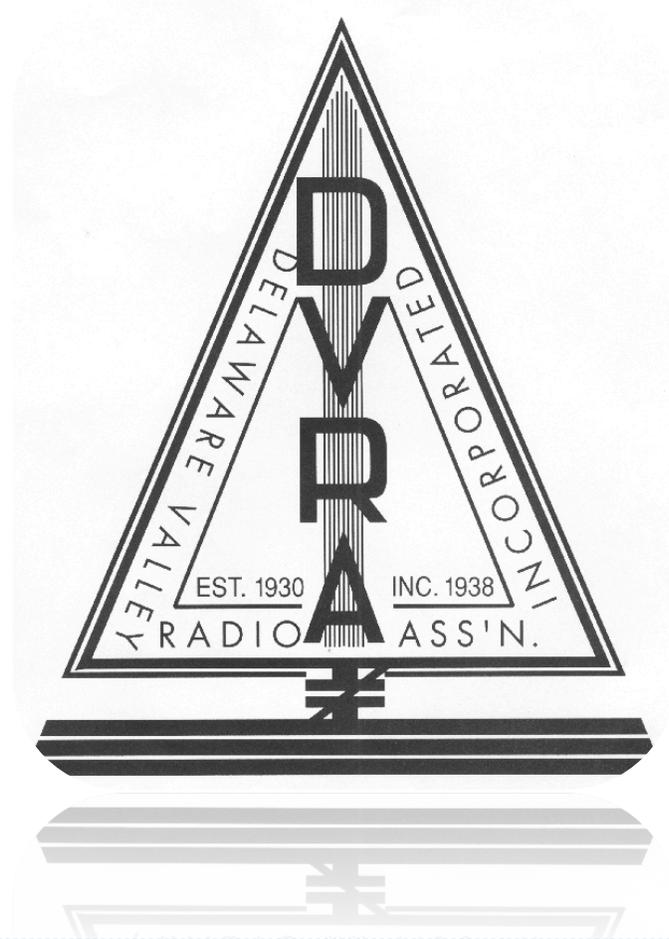


# WIRELESS HILL BEACON

## Delaware Valley Radio Association



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### Meeting – February 12<sup>th</sup> 2013

The regular monthly meeting will be held at 7:30 PM on Wednesday, February 12<sup>th</sup>, at Our Lady of Good Counsel Church, on Upper Ferry Road at Wilburtha Road in West Trenton. The site is easy to reach from I-95 or NJ-29. Talk-in is available on the 146.67 (PL 131.8) and 442.65 repeaters.

BALANCED LINES 2014 Installment 2  
by Bob Schroeder, N2HX  
© 2014

### THANK AN ENGINEER

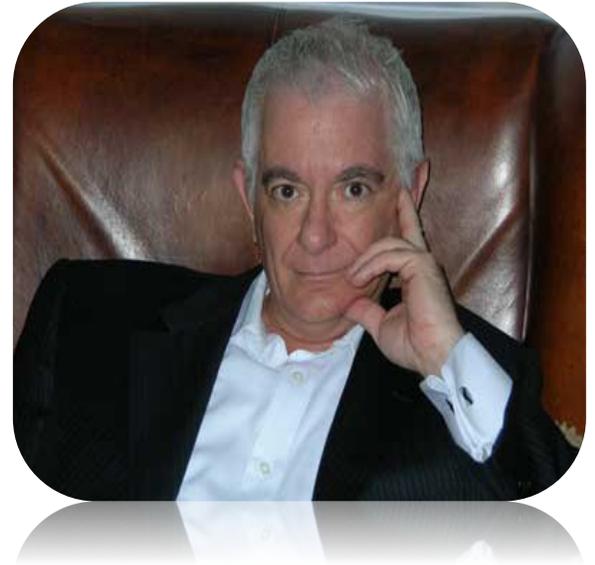
In 1951, the third full week of February was declared National Engineers Week. This year, it runs from February 16<sup>th</sup> until the 22<sup>nd</sup>. The purpose of designating this observance is to ensure a diverse and well-educated future engineering workforce by increasing the understanding of and interest in engineering and technology careers, according to the National Society of Professional Engineers (NSPE). Go here for more information.

<http://www.nspe.org/resources/partners-and-state-societies/national-engineers-week>

Society often blames engineers for the world's ills, like the blinking clock on the microwave oven and VCR, to ill-designed products that either don't work or break too easily, or the runaway eavesdropping and spying that the "alphabet-agencies" have been accused of. Much of this blame is unwarranted because there is a large divide between what gets invented and how it gets used.

In preparation for this article, I contacted the engineering departments at Princeton University and The College of New Jersey to see if either school was planning any special activities. The only information I could get was from TCNJ. Here are the details.

On Wednesday, February 19, TCNJ will host a special lunch incorporating various engineering themes and interesting ideas from 1100 hours to 1400 hours in Eikhoff Hall. Immediately following the lunch at 1430 hours, there will be a special lecture in room ED-212 by Dr. James Rautio, President and CEO of Sonnet Software. Rautio is a notable expert on the life and times of James Clark Maxwell and his famous equations. His talk is entitled "Maxwell's Miracle". As you may know, Maxwell wrote his famous equations 150 years ago. While they may be arcane to most of us, Maxwell's equations have made our modern technological world possible. In the next few months I will be doing a series of articles about Maxwell's equations and will explain what they are and how Amateur Radio makes use of them.



The NSPE has also put these activities on their calendar for 2014 Engineers Week.

February 18- National Engineers Week Future City Competition  
February 20- Introduce a Girl to Engineering Day  
February 22- Family Day in Washington, D.C.

Scheduled for March 5 through 7 will be the Global Marathon For, By, and About Women in Engineering. Go here for more information.

<http://www.discovere.org/our-programs/global-marathon>

### **SOMETIMES IT'S GOOD TO BE AN ORPHAN**

You may have read the recent update to the Target credit card hacking scandal. Hacking into consumer systems has traditionally been accomplished either at the point of sale (i.e. in the store where the buyer swipes his credit card in the machine) or anywhere along the pathway between the store and the computer networks that record and store the purchase. Just like a Mission Impossible story, the Target incident is as diabolical as they come. As described in this recent New York Times article <http://nyti.ms/1bwje7d> the mode of entry the hackers used was remote access connection to the company's HVAC system.

What does stealing consumer data have to do with a building's heating system? Before the world was glamoured into putting every blessed thing on the Internet, it would have had nothing to do with it. Because the convergence is to put every minute aspect of our lives on the Internet, these hacking points of entry are becoming more prevalent and inviting to abuse by hackers.

The weak link in the Target caper is the heating and cooling system. In an effort to make it "convenient" to perform maintenance on it, Target's HVAC system has a connection to the Internet so that if the system detects a problem, it will contact the contractor and dispatch a serviceman. Conversely, if the contractor wants to check the system status, he can remotely log into any Target store to check on the HVAC system. This idea is not new. When I worked for the NJ Office of Emergency Management, I was part of the design team that created the new State Emergency Operations Center. As an additional layer of redundancy, the building design called for a master uninterruptible power supply (UPS) to run the building's essential electronic systems. The GE static UPS system that I was considering offered the capability to connect a standard telephone line to the UPS so that the UPS could "call home" to the vendor if there was a problem. Likewise, the vendor could dial in to check on system status. As it turned out, we bought a different unit; however, the principle is the same. In the case of the intrusion into Target's network, the HVAC system was permanently connected to the Internet. Once the hackers figured out the IP address for the machines, they

could easily attack the consumer database because both shared the same computer system server.

For any personal or enterprise system, it is a really stupid idea to connect computers to the Internet that don't have to be. Computers that don't need to be connected to the Internet (or aren't connected for security reasons) are called orphan computers. They stand alone, do their job, and have no connection to the internet whatsoever. Consider the formula for Coca Cola. Under pressure from the U.S. Food and Drug Administration, the Coca-Cola Company removed the cocaine from its secret recipe in 1903. Because there were no computers in those days, everything about the soda was written down on paper and locked in a vault. In 2014, the original formula no doubt remains properly preserved on paper, along with all the other company secrets. Why would any intelligent company put that kind of information on a computer when it's obviously not necessary? This is how you achieve information security. If you don't need to put it on a computer (much less one that's connected to the internet), why would you?

Commercial enterprises have their own headaches caused by their own naïveté. Big companies should know better. For the consumer world, the problem still quietly exists. More and more appliances that have nothing to do with the Internet now have Internet connectivity, supposedly for your "convenience". Consider the new NEST learning thermostats for the home. Through a household WiFi connection, the NEST thermostat "learns" your home and away habits and also gathers the local weather conditions to optimize your home's heating and cooling needs. Even certain lawn irrigation systems reach out to the Internet to determine whether or not it's going to rain.

I've written several times about the world's SCADA infrastructure control network and how susceptible it is to being hacked. [www.infracritical.com](http://www.infracritical.com) If you were to read the postings on the SCADASEC newsgroup, you would be amazed at the number of weak points at which our nation's infrastructure could be penetrated and hacked. Worse yet, these attacks happen every day.

Lest I be described as a Cassandra, these security problems are very real. We've been reading about them for decades. As far back as 1981, Hollywood warned us about such possibilities when they made the movie "Rollover" with Jane Fonda and Kris Kristofferson. Like smoking and drinking, we know that connecting more and more things to the Internet is completely unsafe. Yet we do it anyway, again and again.

All for now.

Comments invited.  
Bob Schroeder, N2HX  
Past President, DVRA

**DVRA Nets**

2-meter & 70-cm nets on the club repeaters 146.670 pl 131.8, 442.650 pl 131.8

2-Meter Nets:

The Pepper Net 10:00 PM Daily

Mercer Co. Emergency Net 7:30 PM Tuesdays KB2EGI, coordinator.

**Training & Upgrade Classes**

Don Wright, AA2F, periodically holds Technician and General classes.

Classes are held at various locations. Call Don at 609-737-1723 to register.

**Exam Schedule**

For 2014 exams will be held on Jan 18, March 15, May 10, July 19, Sept 13 and Nov 15. All Exams will be at 12:15 on the listed Saturdays at the Hopewell (Twp) Branch of the Mercer County Library, 245 Pennington-Titusville Road, next door to the Hopewell Valley Central High School. Bring \$15, cash or check, and 2 forms of identification, at least one being a photo ID. For further information, contact Don/AA2F at 609-737-1723 or aa2f@arrl.net.

**Logbook of The World**

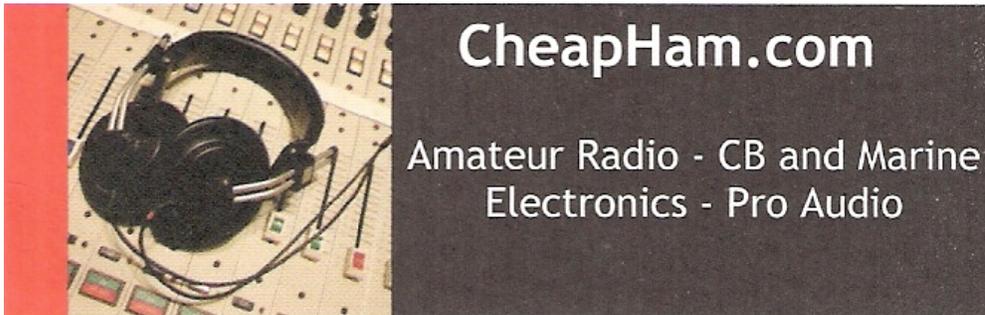
Mike AB2IO reports that the current W2ZQ LOTW

5325/16555 Matched as of Jan. 24, 2014

Latest QSLs

N8NOE	2007-06-24	00:28:09	40M	RTTY	7.070	UNITED STATES OF AMERICA
K5PXP	2007-06-24	02:45:30	20M	CW	14.010	UNITED STATES OF AMERICA
F8DVD	2007-10-28	16:42:30	15M	SSB	21.44000	FRANCE
SP7POS	2007-11-25	23:15:22	40M	CW	7.00780	POLAND

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### **Fame and Fortune Await**

Want to become rich & famous – write an article for the DVRA Beacon. Fame among local hams almost guaranteed – fortune is up to you (and your luck in Powerball). Deadline for submission is one week before the monthly meeting (that would make the deadline the first Wednesday of the month). For details contact Alex / AB2RC – [ab2rc@ab2rc.net](mailto:ab2rc@ab2rc.net)

### **Help Wanted**

Our club treasurer, Ron KC2PQC, is looking for a club member to help with the treasurer's duties. If you are interested, please contact him at 609-695-5990 or email [ronk@snip.net](mailto:ronk@snip.net) .

### **Meeting Minutes**

Not received in time for publication.