



Squelch Tales



Newsletter from the Merrymeeting Amateur Radio Association for September 2009

Cook's Corner Firehouse EOC taking shape

Brunswick, August 15th: Early that Saturday morning Jim McIrvin (N1IPA), John Goran (K1JJS) and Bruce Randall (W1ZE) arrived at the Cook's Corner fire station to get things rolling on the antenna installations. That day it was the installation of the antenna mast and the Comet VHF/UHF vertical collinear antenna.

The fire crew at the station had the hook-and-ladder engine out and gave Jim and his bag of tools a ride in the bucket. Jim called down to Bruce and John on the ground (on 147.21 simplex) so they could do the ground "grunt" work. Previously the town's electrical contractor had run two runs of coax cable from the EOC office up to the antenna location on the roof. It was a hot muggy day so Jim wasted no time getting the hardware and antenna mounted and coax connected.

The Kenwood dual-band transceiver was hooked up to the coax and immediately it was noted that the 11dB gain Comet antenna was working great. As expected the local VHF and UHF repeaters were S9 plus. That morning there was a lift band enhancement on the Two-Meter band. John programmed in the 147.00 repeater frequency and keyed up the Kenwood and two repeaters came back. One was the Deerfield, NH repeater about 65 air miles away and the other was the KQ1L system repeater in Lincoln, ME, about 120 air-miles north. John was able to access most all the repeaters from Bangor to Portsmouth. Without band enhancement it is not expected to have that coverage continue but it still should be good coverage for southern and central Maine.

John was informed that the CERT/ARES radio equipment could not stay in the EOC office and must be locked-up in a cabinet in the conference

room across the hall when not being used. This led to Bruce making a suggestion that the HF and UHF/VHF transceivers be mounted in "GO BOX." The box could be picked-up, sat on the EOC office desk, connected to the antenna coax and Astron power supply and the complete EOC CERT ham radio station would be on the air in less than a few minutes. The three agreed that was a good Idea so Bruce said he would build up the box.

The next work project at the fire station is to string up the 75-meter dipole. Jim is assembling an out-rigger arm to be mounted to the antenna mast-pipe just below the Comet vertical and then the crew will assess where to tie-off the dipole ends. When that is done the Mid Coast ARES/CERT EOC radio station will be up and running when needed.



KX1I a bit under the weather

The MARA own Marjorie Turner, KX1I has joined Lee Tribou, N1OHC in sick bay. On Friday August 14th Marjorie was admitted to Central Maine Medical Center in Lewiston to have her gallbladder removed. As of this writing she is recuperating from that major operation at home. Hopefully by the time you all read this she will be sitting up and working DX.

World's First Battery Fueled By Air

Received from Bill Messier, K1MNW

UK Researchers Developing Rechargeable Lithium-Air Battery; Up to 10 times the Capacity of Current Li-ion Cells

Oxygen drawn from the air reacts within the porous carbon to release the electrical charge in this lithium-air battery.

Researchers in the UK are developing a rechargeable lithium-air battery that could deliver a ten-fold increase in energy capacity compared to that of currently available lithium-ion cells. The research work, funded by the Engineering and Physical Sciences Research Council (EPSRC), is being led by researchers at the University of St Andrews with partners at Strathclyde and Newcastle.

Initial results from the project delivered a capacity of 1,000-mAh g-1, while recent work has obtained results of up to 4,000-mAh g-1.

Lithium-air batteries use a catalytic air cathode in combination with an electrolyte and a lithium anode. Oxygen from the air is the active material for the cathode and is reduced at the cathode surface. An issue with Li-air batteries can be the accumulation of solid reaction products on the electrode, which blocks the contact between electrolyte and air.

The four-year EPSRC research project, which reaches its halfway mark in July, is targeting the development of a Li-air cell that is rechargeable and can sustain cycling. The project addresses a number of the materials issues necessary to realize this high-energy storage battery based on a non-aqueous O₂ electrode. During the project, the team has so far more than tripled the capacity to store charge in the STAIR (St Andrews Air) cell.

The project is focused on understanding more about how the chemical reaction of the battery works and investigating how to improve it. The research team is also working towards making a STAIR cell prototype suited, in the first instance, for small applications, such as mobile phones or MP3 players.

The key is to use oxygen in the air as a reagent, rather than carry the necessary chemicals around inside the battery. Our target is to get a five to ten fold increase in storage capacity,

which is beyond the horizon of current lithium batteries. Our results so far are very encouraging and have far exceeded our expectations.

—Professor Peter Bruce of the Chemistry Department at the University of St Andrews, principal investigator Bruce estimates that it will be at least five years before the STAIR cell is commercially available.



NQ4I/Aeronautical Mobile, a fun QSO

Report by W1ZE

Throughout the morning of Friday, August the 21st I was listening to NQ4I/AM in his Golf Stream jet flying from London to Los Angeles. Throughout the flight he consistently had a S9 signal on 14.200 MHz. While he was over Hudson Bay, in northern Canada I decided to give him a call. I turned my SteppIR almost due north and gave him a call. Rick came back on my first call and said, “Good morning Bruce, nice to hook-up with you again, your are 59 plus”(we have QSOed several times before during his previous DXpotion). He said he was going to ham-it-up all the way to LA accepts when he had to make flight path changes. He added it had been a wonderful flight so far and he reported that he could not see any ice or snow on or around Hudson Bay from 38,000 feet. He advised that if I wanted to see his Jet Stream jet and view his real time flight plotting I should go to his web site at www.nq1i.com. I did just that and it was a very informative site with lots of info.

The first time I ever worked a aircraft running HF was in 1985 when I had a quick QSO with King Hussein of Jordan, JY1 (SK) as he was flying from New York to Oman near Greenland. Lots of fun!
73, Bruce, W1ZE

Tour de Farms, another success for the MARA

Early Sunday morning, August 23rd, a team of MARA and Mid Coast ARES/CERT volunteers assembled at the Morris Farm in Wiscasset to, as they have done these past many years, provide communications and route support for the annual Morris Farm Trust century bike ride. The ride started at the Morris Farm wound its way up the Kennebec River over Blenn Hill in Dresden. A nice route through the pretty countryside of Lincoln County.



There were some snags in the ride however. Other than the farm locations, several other route rest stops did not get manned at all or manned late. Several MARA volunteers, on their own picked up water to give to the bikers. As coincidence would have it, the effects of Hurricane Bill provided a little rain in the morning and very high surf conditions in the Bristol and Pemequid lighthouse area. For that reason hundreds of cars headed to that area with folks watching the wave action along route 35. There was a several mile long traffic-jam heading to the lighthouse, so it was decided to have the bikers cut the route a few miles short and stay out of the traffic.

Taking part in this years event were nine volunteers consisting of: Harry McNalley (N1TTT) acting as net control, Steve Kercel (AA4AK) teamed up with Bruce Randall (W1ZE) in a rover unit. Jim McIrvin (N1IPA) manned rest stop two in Whitefield, John Mounon (N1OIG) assisted by the Pie Lady (XYL) and Copper the Wonder Dog did route roving. Michele and John Briggs (W7LIF/KC6TVF) did SAG vehicle duties for the 100 and 50-mile ride with Al Corderman (W3ZD) manned the lighthouse rest stops. Donnie Dauphin (WD1F) kept taps on the riders from the Gorrenson Farm in Dresden. Harry mastery of Net Control from the Morris Farm

kept sanity in the event by monitoring traffic to two repeaters (147.21 & 146.985).

As in past years the event was capped off with a tasty picnic BBQ at the Morris Farm.

Well done MARA Team!

Note: *Report on the Dan Michoud Memorial bike ride, scheduled for August 29th will appear in next month's newsletter.*



Passing the Tech Test

By Dan Romanchik, KB6NU

I teach One-Day Tech classes. At the start of each class, I go over the following to help focus students on what to keep in mind when taking the test. It occurs to me that these are good tips no matter who is taking the test, so if you know someone who will be testing soon, please feel free to pass along this advice.

Technical Topics

The Tech test is not very technical, but there are three technical topics that you need to know:

- * Ohm's Law,
- * how to calculate power, and
- * the relationship between frequency and wavelength.

Ohm's Law

The basic formula for Ohm's Law is voltage (E) equals current (I) times resistance (R), or $E = I \times R$. On the test, there are several questions where they give you two of the values and ask you to calculate the third. If you're asked to calculate the current, you use the formula, $I = E / R$. If you need to calculate the resistance, use the formula $R = E / I$.

How to Calculate Power

The formula for calculating power is power (P) = voltage (E) times current (I), or $P = E \times I$. To calculate the current drawn, when given the power being consumed and the voltage applied to the circuit, use the formula $I = P / E$.

Relationship Between Frequency and Wavelength

There are several questions that require you to calculate the wavelength of a signal or some fraction of the wavelength. The reason for this is that antennas are often a fraction of a wavelength.

The formula that describes the relationship between frequency and wavelength is

wavelength in meters = 300 / frequency in MHz.
One question asks for the approximate length of a quarter-wavelength vertical antenna for 146 MHz. To figure that out, you first calculate the wavelength: wavelength = 300/146 = 2.05 m or about 80 inches

One quarter of 80 inches is 20 inches, and the antenna will actually be a little bit shorter than that because radio travels more slowly in wire than it does in free space. The correct answer to this question is 19 inches.

That's all there is to the technical part of the test!

Safety

There are lots of questions on the test about operating safely and being safe when working on antennas. My advice when answering these questions is to always choose the most conservative answer. The two exceptions are when asked what is the lowest voltage and current that can hurt you. For these questions, the correct answer is the second lowest choices.

Emergencies

There are lots of questions about what to do in emergencies. There are two things to keep in mind when answering these questions:

- You should do whatever you can to help someone who is in an emergency situation.
- You can even break the rules to help someone in an emergency situation. This includes operating on frequencies you are normally not allowed to operate on and communicating with other stations in other radio services.

Miscellaneous Tips

- Here are a couple of other miscellaneous tips: The answer is 'D.' If one of the answers to a question is, "D. All of these answers are correct," chances are that is the correct answer. There are 18 questions with this option, and of those 18 questions, there are only two questions--T3B06 and T5B03--where that is not the correct answer.
- Long-Answer Rule. Where one answer is a lot longer than the other options, chances are that this is the correct answer. I haven't done an exhaustive study of this, but when one answer is very long, take a good, hard look at it.

That's all I have. Good luck on the test!

When not helping people pass the Tech test and become good amateur radio operators, Dan likes to work CW on the HF bands and collect QSL cards from stations whose call signs spell words.

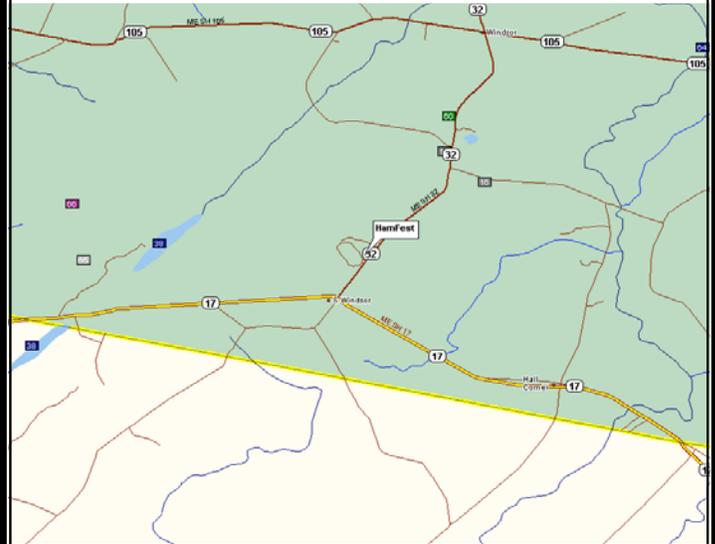
To see what else he's up to, go to www.kb6nu.com



Fall Ham Events

Windsor Hamfest

Saturday, September 12, Augusta
Amateur Radio Association,
www.w1tlc.com Windsor Fairgrounds
State Route 32. From Augusta take Rt.17 east to the intersection with Rt. 32. Turn left (north) 1/8th mi. Talk-in on the 146.88 repeater



NEAR-Fest VI



Friday and Saturday, October 16th and 17th
Fairgrounds, Deerfield, New Hampshire.
For more info go to: <http://www.near-fest.com/>