



# RADIO AMATEUR News & Views

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## NEXT MEETING: APRIL 9

### “THE WONDERS OF SMPS OR, HOW ALINCO DM-330MVS WORK AND HOW THEY COMPARE TO THE ASTRON 35 ”

**H**AVE YOU EVER WONDERED how your power supply works?  
Do you have a linear supply or a switcher?  
Why do you care? 13.8VDC is 13.8VDC. Or is it?

Join us for a rousing presentation and discussion in April about Bob *KB1FRW*'s recent adventures with two Alinco DM-330MV switched mode power supplies. After using Astron 20amp and 35 amp linear power supplies for several years Bob decided to try switched mode power supplies for efficiency reasons. So he purchased two Alinco DM-330MV, a couple of used ones, at NEAR-FEST.

Then he had to fix one, so he had to learn how they worked. And on April 9, he'll share it all with us. Bob plans to discuss the pros and cons of each type of supply and explain how switched and linear supplies work. He'll revisit the repairs that he's made to both the Astrons and the Alincos over the years, and throw in a bit about the Samlex 1223 that went south too.

You will learn more about these supplies than you ever needed to know.

Afterwards, stay for some refreshments and visiting. But first—why not stop by Zachary's Pizza, around the corner on Williston Road, where some of us gather for dinner around 6:00.



## TOWERING ISSUES

Kathi *K1WAL*

**T**HIS LITTLE PROJECT STARTED when Zach *K1ZK* announced had a used Rohn HDMX-40 tower for sale at a good price. Then Howie *K2MME* had an older Hy-Gain TH-3 tri-band antenna stowed away in a barn that was free to a good home.

I thought my biggest problem would be my town's zoning ordinance. As it turned out, I had little trouble with my town's Zoning Board. I wrote a polite letter on why the tower was necessary, emphasizing emergency communications as well as spreading brotherly (and sisterly) love around the world through DXing. Along with the letter I filled out an application for the zoning permit and for a mere \$27 I left with the permit in hand! I had already spoken with all my neighbors and they were either disinterested as long as it didn't affect them or were excited enough to want to help raise the tower!

Zach had already warned me I'd need a decent size footing and would need to buy the hinge pins and some other hardware. He shared with me some of the research he'd already done. I figured I'd be getting away cheap!

Wrong.

It's funny how things have a way of adding up. Those hinge pins (or a hinge plate) cost a bit more than I expected, but I figured that's not so bad. Then I looked into the cost for a 4'x4'x5' footing. How much? Maybe I can find a friend of a friend...

Then someone asked where I would put the rotator. Rotator? Hey, that's a good idea! How much? I need how many feet of coax? How much?

Someone had mentioned that Gene *W1EBR* had a similar tower arrangement so my husband, Stacy (bless his patient non-Ham heart), and I arranged for a visit. That was an eye-opener! Gene had spent much thought, time, and effort on his tower situation. I showed him the informa-

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## SECRETARY'S REPORT

Kathi *K1WAL*, SECRETARY  
MARCH MEETING

### Business:

- Bob *W4YFJ* announced that he and Carl *AB1DD* will once again operate a station (actually two stations) on the Steamship Ticonderoga at the Shelburne Museum for the Museum Ships event in June. This was a big hit last summer! If you are interested in operating, please contact Bob so he can make the schedule. This event runs two days so there should be a time slot that works for you
- Bob *KB1FRW* mentioned the interested in a Kit Night, but once again no one can zero in on a project. Jeff *N1YD* offered to look into a Morse code oscillator. A fox hunt attenuator device was also considered.
- Kathi *K1WAL* suggested CW as a future topic.
- Bob *W4YFJ* offered to bring snacks for April.

### Presentation: EME

Bob *W1ICW* proceeded to enlighten and entertain us with his presentation, officially titled *Moonbounce On a Budget*.

2010 was the 30<sup>th</sup> anniversary of Bob being a ham and he was up for a new challenge. He decided to have a go at this Moonbounce business.

He started off with the basics: a moonbounce (or EME, Earth Moon Earth) is contact made via signals bounced off the moon. Then he went into a little history beginning with the first moonbounce done by the US Army's Project Diana in 1946, followed by the first successful amateur contact in 1960 between *W6AY* and *W1FZJ*. Bob went on to talk about the early EME contacts in Vermont. The first was Al Parrish *K1KKP* in 1965 from Peru, followed by Warren *K1BKK* from Barre in 1975. The third Vermont EME contact was by Lance *WA1JXN* (now *W7GJ*) in Bridgewater.

Bob's design considerations: antennas small enough to use standard rotors, but large enough to work; a small (<500W) amplifier; to build as much as possible to save money; zero dollar investment (selling off surplus gear to fund the project); and making his first 10 QSOs using his existing gear.

Continued

Tower cont.

tion I had for the tower and the antenna. His tower was similar, but at 48'. Looking at the tower drawings I got online for my tower model he explained torques, stresses, and some issues he had when he brought home his tower (used.) The top section had been twisted and needed reinforcement. Several rivets had been popped so he replaced them with hardened screws. He bought additional cross pieces to strengthen the top two sections. Fortunately Stacy is an engineer so much of what went over my head he had a grasp of—at least structurally and mechanically.

Since the beam on the antenna is 14' and the tower specs to 10,' Gene suggested putting the rotator down the tower a couple of sections. This means a longer mast, preferably one that doesn't weigh much since weight seems to figure in prominently. I would need a top plate and possibly up to 2 rotor plates. How much?

He showed me where the footing would need a rebar cage. Rebar cage?

He explained about his ground circle of copper ribbon and ground rod. Copper isn't cheap!

I had planned to put the tower a few feet from the back of the garage and use some sort of block and tackle to lower it. We talked about that and Gene noted sometimes a building needs reinforcing so as not to pull down

Secretary cont.

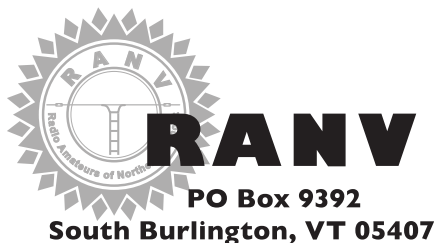
With these considerations in mind, the biggest difficulties were path loss (250dB), the amateur limit of 1.6 kW output, degradation, and antenna polarity effect. The answer to these problems was more antennas; antennas that are bigger. Bob worked through these issues and made it happen!

A short tangent ensued, with descriptions of some of the antennas of the Rich and Famous worldwide, before coming back to reality. Taking up his main topic again, Bob talked about the path loss issue, discussed polarity effects, and explained that degrade is a combination of background cosmic radiation (sky noise) and loss from the elliptical orbit of the moon. However, this is predictable and can be planned for. The low power dilemma was solved by Joe Taylor who, in 2001, released WSJT, a software suite of soundblaster-based digital modes for weak signals. Bob talked a bit about the software and recommends it heartily!

Success! His first EME QSO was on January 31, 2010 with *RK3FG*, his second on February 3 with *KB8RQ*, and his third with *I2FAK* on February 21.

The slides from Bob's presentation are on the RANV website, [www.ranv.org](http://www.ranv.org). This will explain more fully the technicalities of his endeavor.

It was an interesting and educational presentation, given with that easygoing DeVarney wit and charm!



a wall. Now Stacy is considering putting the tower out in the yard away from the house. That means even more coax and I would want that to be buried. Maybe a boat winch to raise and lower the tower. More expense.

Gene had an additional expense of drilling through bedrock! Fortunately, I don't have rocks (except in my head) and I hope the clay in my yard won't cause problems with the footing.

In spite of the expense I will press on. It may not go up this spring, but sometime this summer seems reasonable. Gene went to great lengths to do things properly and safely, and this is certainly the best path to follow although the temptation to cut corners will be strong—especially where my pocket-book is concerned!

Any suggestions or tips will certainly be welcomed and appreciated!



## NEWS & VIEWS

April • 2013

### INSIDE

- Secretary: March
- Towering Issues

### Upcoming, Notices, & Misc

- RANV: May Meeting—5/14
- NEAR-Fest 5/3 & 4, [www.near-fest.com/](http://www.near-fest.com/)
- Field Day: 6/29 & 30
- Steering Wheel: 3rd Tues, 6:30-8:30; Texas Roadhouse, Essex Jct.
- Dues due? Pay online at [www.ranv.org/ranvpay.html](http://www.ranv.org/ranvpay.html)
- VT Ham Radio Calendar [www.vthrc.net](http://www.vthrc.net)

### NEXT MEETING

TUESDAY • APRIL 9 • 7:00PM

O'Brien Civic Center • Patchen Rd  
South Burlington

**“SMPS”**

[www.RANV.org](http://www.RANV.org)